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Part II

Department of Transportation

Coast Guard

33 CFR Part 151

Noxious Liquid Substances List; Notice of Proposed Rulemaking

46 CFR Part 30 et al.

Bulk Hazardous Materials; Notice of Proposed Rulemaking

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DEPARTMENT OF TRANSPORTATION

Coast Guard

33 CFR Part 151

[CGD 88-100a]

RIN 2115-AC35

Noxious Liquid Substances Lists

AGENCY: Coast Guard, DOT.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Coast Guard proposes to amend its Noxious Liquid Substances (NLSs) regulations to include substances recently authorized for carriage by the Coast Guard or added to the International Maritime Organization's Chemical Codes and by making minor editorial changes and corrections. This action would update the current lists of oil-like and non-oil-like NLSs allowed for carriage.

DATE: Comments must be received on or before January 19, 1989.

ADDRESSES: Comments may be mailed to Commandant (G-LRA-2) (CGD 88-100a), U.S. Coast Guard, Washington, DC 20593-0001. Comments received may be inspected or copied at the Regulatory Administrative Branch, Room 2110, U.S. Coast Guard Headquarters, 2100 Second Street SW., Washington, DC 20593-0001 between 8 a.m. and 3 p.m., Monday through Friday, except Federal holidays. The telephone number is (202) 267-1477.

FOR FURTHER INFORMATION CONTACT: Mr. Curtis G. Payne, Hazardous Materials Branch, (202) 267-1577.

SUPPLEMENTARY INFORMATION: Interested persons are invited to participate in this proposed rulemaking by submitting written views, data, or arguments. Each letter should include the name and address of the person submitting the comments, reference and docket number (CGD 88-100a) and the specific section of the proposal to which each comment applies, and give the reasons for each comment. If acknowledgment of receipt of comments is desired, a stamped, self-addressed postcard or envelope should be enclosed.

All comments received before the expiration of the comment period will be considered before final action is taken on this proposal. The proposal may be changed in view of the comments received. No public hearing is planned, but one may be held at a time and place to be set in a later notice in the **Federal Register** if requested in writing and it is determined that the opportunity to make oral presentations will aid the rulemaking process.

Drafting Information

The principal persons involved in drafting this document are Mr. Curtis G. Payne, Project Manager, and Mr. Stephen H. Barber, Project Counsel, Office of Chief Counsel.

Discussion of Amendments

The Coast Guard is proposing to revise its lists of Category D Noxious Liquid Substances (NLSs) and Categories C and D Oil-like NLSs by including in these lists new entries proposed to be added to Table 30.25-1 of 46 CFR Part 30 and Table 2 of 46 CFR Part 153 by a separate rulemaking appearing elsewhere in this edition of the **Federal Register** (Coast Guard Docket CGD 88-100).

(a) *Section 151.47.* A number of new chemical cargoes would be added to the list in § 151.47. These include the following Category D Noxious Liquid Substances (NLSs), known as Pollution Category (Pol. Cat.) D cargoes, in Title 46:

(1) Cargoes recently authorized in Coast Guard regulations for Subchapter D, 46 CFR Part 30, and Table 2 of 46 CFR Part 153.

(2) Cargoes currently included in Chapter 18 of the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (the "IBC" Code) and Chapter VII of the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (the "BCH" Code) but not yet in Coast Guard regulations.

(3) Cargoes currently included in the report of the IMO Evaluation of Hazards Working Group (BCH), BCH 18/16, July 19, 1988.

Several current commodity names would be modified or corrected to conform with the International Maritime Organization (IMO) name or to correct typographical errors.

Five entries would be deleted. "Calcium chloride solution", "Ethylene glycol butyl ether", "Latex", and "Triisopropanolamine" are NLS Category "III". "Coconut oil, fatty acid methyl ester" is NLS Category C.

New entries to § 151.47 are indicated with an asterisk and changes to existing entries are in bold face.

2. *Section 151.49.* "Decene", an NLS Category B, and "Dodecyl benzene", an NLS Category "III", would be deleted from paragraph (a). One entry, "n-Parafins (C_{10} to C_{20})" (sic), in paragraph (b) would be deleted. This entry has been reevaluated by IMO for its pollution hazard and been reassigned to Appendix III of Annex II to the International Convention for the Prevention of Pollution from Ships 1973 (MARPOL 73/78) as a liquid substance that has been determined to be other than an A, B, C, or D NLS.

Several current commodity names in § 151.49 (a) and (b) would be modified or corrected to conform with the IMO name or to correct typographical errors.

E.O. 12291 and DOT Regulatory Policies and Procedures

These proposed regulations are considered to be non-major under Executive Order 12291 and nonsignificant under the Department of Transportation (DOT) regulatory policies and procedures (44 FR 11034; February 26, 1979). The economic impact of this proposal has been found to be so minimal that further evaluation is unnecessary. This rulemaking is administrative in nature and merely would update chemical lists by adding substances recently authorized by the Coast Guard or added to the IMO Chemical Codes and by making non-substantive corrections.

Regulatory Flexibility Act

Because the impact of this final rule is expected to be minimal, the Coast Guard certifies under section 605(b) of the Regulatory Flexibility Act (5 U.S.C. 605(b)) that this final rule will not have a significant economic impact on a substantial number of small entities.

Paperwork Reduction Act

This rulemaking contains no information collection or record keeping requirements.

Federalism Implications

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 12612, and it has been determined that the proposed rulemaking does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Environmental Assessment

The Coast Guard has considered the environmental impact of the regulations and concluded that, under section 2.B.2. of Commandant Instruction M16475.1B, the proposed regulations are categorically excluded from further environmental documentation. This rulemaking is an administrative update of lists of chemicals already approved or soon to be approved under Coast Guard regulations or international law. A Categorical Exclusion Determination Statement has been prepared and is included in the Regulatory docket.

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List of Subjects in 33 CFR Part 151

Oil pollution, Reporting and recordkeeping requirements.

For the reasons set out in the preamble, 33 CFR Part 151 is proposed to be amended as follows:

PART 151—OIL AND NOXIOUS LIQUID SUBSTANCE REGULATIONS

1. The authority citation for Part 151 is revised to read as follows:

Authority: 33 U.S.C. 1321(j)(1)(C), 1902(c) and 1903(b); E.O.11735; 49 CFR 1.46.

2. In § 151.47, by revising the list to read as follows:

§ 151.47 Category D NLSs other than oil-like Category D NLSs that may be carried under this part.

* * * * *

*Acetophenone
*Acrylonitrile-Styrene copolymer dispersion in Polyether polyol
*Ammonium nitrate solution (45% or less)
*Ammonium nitrate, Urea solution (2% or less NH_3)
*Ammonium phosphate, Urea solution
Ammonium sulfate solution **(20% OR LESS)**
Amyl alcohol **(ISO-,** n-, sec-, primary)
*Brake fluid base mixtures
*Butene oligomer
BUTYL ACETATE (SEC-)
Butylene glycol
ISO-BUTYL FORMATE
*n-Butyl formate
BUTYROLACTONE (GAMMA)
Calcium alkyl salicylate
*Calcium hydroxide slurry
Caprolactam **SOLUTIONS**
*Choline chloride solutions
*Decahydronaphthalene
*Decane
*Decyl benzene (n-)
Diacetone alcohol
*Dialkyl(C10 - C14) benzenes
*Dialkyl(C7 - C13) phthalates
Diethylene glycol butyl ether acetate
*Diethylene glycol dibutyl ether
Diethylene glycol ethyl ether acetate
Diethylene glycol methyl ether acetate
*Diethylene glycol phenyl ether
*Diethylene glycol phthalate
Di-(2-ethylhexyl)adipate
Di-(2-ethylhexyl)phthalate
*1,4-Dihydro-9,10-dihydroxy anthracene, disodium salt solution
Diisobutyl ketone
Diisodecyl phthalate
*Diisononyl adipate
*Diisononyl phthalate
*Diisopropyl naphthalene
*2,2-Dimethylpropane-1,3-diol
Dinonyl phthalate
*Dipropylene glycol dibenzoate
Dipropylene glycol methyl ether
*Ditridecyl phthalate
Diundecyl phthalate
2-Ethoxyethanol
*Ethoxy triglycol *(crude)*
*Ethyl acetate
Ethyl acetoacetate
*Ethyl butanol
*Ethyl cyclohexane
Ethylenediamine tetraacetic acid, tetrasodium salt solution
Ethylene glycol
Ethylene glycol acetate
Ethylene glycol butyl ether acetate
*Ethylene glycol dibutyl ether
*Ethylene glycol ethyl ether
*Ethylene glycol isopropyl ether
*Ethylene glycol methyl butyl ether
Ethylene glycol methyl ether
Ethylene glycol methyl ether acetate
Ethylene glycol phenyl ether
*Ethylene glycol phenyl ether, Diethylene glycol phenyl ether mixture
2-Ethylhexanoic acid
*Ethyl propionate
*Ferric hydroxyethylethylene diamine triacetic acid, trisodium salt solution
*Fish solubles
Formamide
*Glyoxal solution (40% or less)
*Heptanoic acid
*Hexamethylenediamine adipate
*Hexamethylenetetramine solutions
*Hexanoic acid
1-Hexanol
N-(Hydroxyethyl)ethylenediamine triacetic acid, trisodium salt solution
Isophorone
Lactic acid
3-Methoxybutyl acetate
*Methyl acetoacetate
*Methyl butenol
*Methyl butyl ketone
*Methyl butynol
Methyl isobutyl ketone
Methyl tert-butyl ether
*Naphthalene sulfonic acid-formaldehyde copolymer, sodium salt solution
*Nonane
*Nonanoic acid (all isomers)
*Nonanoic, Tridecanoic acid mixture
*Nonyl methacrylate
*Noxious Liquid Substance, (17) n.o.s.
*Octadecenoamide solution
*Octane
*Octanoic acid
*Octyl acetate
*Oil, edible:
Babassu
Beechnut
Castor
Cocoa butter
Coconut
Cod liver
Corn
Cottonseed
Fish
Groundnut
Hazelnut
Nutmeg butter
Olive
Palm
Palm nut
Peanut
Poppy
Raisin seed
Rapeseed
Rice bran
Safflower
Salad
Sesame
Soya bean
Sunflower
Tucum
Vegetable
Walnut
*Oil, misc:
Animal, n.o.s.
Coconut oil, fatty acid methyl ester
Coconut oil, esterified
Lanolin
Linseed
Neatsfoot
Oiticica
Palm oil, fatty acid methyl ester
Palm oil, methyl ester
Perilla
Pilchard
Sperm
Tung
Whale
Oleic acid
*Palm stearin
*Pentaethylenehexamine
*Pentane (iso-)
*Pentanoic acid
*Polyalkylene glycols, Polyalkylene glycol monoalkyl ethers mixtures
*Polyethylene glycol monoalkyl ether
*Polypropylene glycols
*Potassium oleate
PROPYL ACETATE (N-)
*iso-Propylcyclohexane
*Propylene glycol monoalkyl ether
*Propylene glycol ethyl ether
*Propylene glycol methyl ether
*Sodium acetate solution
*Sodium benzoate solution
*Sodium carbonate solutions
*Sodium silicate solution
*Tallow
*Tallow fatty acid
*Tetrasodium salt of Ethylenediaminetetraacetic acid solution
*Triethylene glycol ethyl ether
*Triethylene glycol methyl ether
*Triethyl phosphate
*Trimethylol propane polyethoxylate
*Tripropylene glycol methyl ether
*Trisodium salt of N-(Hydroxyethyl)-ethylenediamine triacetic acid solution
*Urea, Ammonium mono- and di-hydrogen phosphate, Potassium chloride solution
*Urea, Ammonium nitrate solution (2% or less NH_3)
Urea, Ammonium phosphate solution
*Waxes:
Candelilla
Carnauba

Notes

* denotes newly added products.
Entries in **BOLDFACE** are changes.

§ 151.49 [Amended]

3. In § 151.49, paragraph (a), by removing the word "P-Cymene" and adding, in its place, the word "p-Cymene", by removing the words "Decene" and "Dodecyl benzene", by removing the words "Diethyl Benzene" and adding, in their place, the words "Diethyl benzene", by removing the words "Pentene, all isomers" and adding, in their place, the words "Pentene (all isomers)", by removing the word "Phenylxylylethane" and adding, in its place, the words "1-Phenyl-l-xylyl ethane", and by removing the words

"Tetrahydro naphthalene" and adding, in their place, the word "Tetrahydronaphthalene" and, in paragraph (b), by removing the words "Alkylbenzene (C_9 to C_{17} straight or branched chain)" and adding, in their place, the words "Alkyl(C_9–C_{17}) benzenes", by removing the word "Dodecane" and adding, in its place, the word "n-Dodecane", and by removing "n-Parafins (C_{10} to C_{20})".

Dated: November 4, 1988.

M. J. Schiro,

Captain, U.S. Coast Guard, Acting Chief, Office of Marine Safety, Security and Environmental Protection.

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46 CFR Parts 30, 150, 151, and 153

[CGD 88-100]

RIN 2115-AC35

Bulk Hazardous Materials

AGENCY: Coast Guard, DOT.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Coast Guard proposes to amend its regulations on carriage of bulk hazardous materials by adding cargoes recently authorized for carriage by the Coast Guard or added to the International Maritime Organization's Chemical Codes and by making minor technical and editorial changes and corrections. This action would update the bulk hazardous materials tables and better inform persons shipping bulk hazardous material of that material's compatibility and special handling requirements.

DATE: Comments must be received on or before January 19, 1989.

ADDRESS: Comments may be mailed to Commandant (G-LRA-2) (CGD 88-100), U.S. Coast Guard, Washington DC 20593-0001. Comments received may be inspected or copied at the Regulatory Administrative Branch, Room 2110, U.S. Coast Guard Headquarters, 2100 Second Street, SW, Washington, DC 20593-0001 between 8 a.m. and 3 p.m., Monday through Friday, except Federal holidays. The telephone number is (202) 267-1477.

FOR FURTHER INFORMATION CONTACT: Mr. Curtis G. Payne, Hazardous Materials Branch, (202) 267-1577.

SUPPLEMENTARY INFORMATION: Interested persons are invited to participate in this proposed rulemaking by submitting written views, data, or arguments. Each letter should include the name and address of the person submitting the comments, reference the docket number (CGD 88-100) and the specific section of the proposal to which each comment applies, and give the reasons for each comment. If acknowledgement of receipt of comments is desired, a stamped, self-addressed postcard or envelope should be enclosed.

All comments received before the expiration of the comment period will be considered before final action is taken on this proposal. The proposal may be changed in view of the comments received. No public hearing is planned but one may be held at a time and place to be set in a later notice in the **Federal Register** if requested in writing and it is determined that the opportunity to make oral presentations will aid the rulemaking process.

Drafting Information

The principal persons involved in drafting this document are Mr. Curtis G. Payne, Project Manager, and Mr. Stephen H. Barber, Project Counsel, Office of Chief Counsel.

Related Rulemaking

Elsewhere in this edition of the **Federal Register**, the Coast Guard is publishing proposed amendments to its noxious liquid substances lists in 33 CFR 151.47 and 151.49 [Coast Guard docket CGD 88-100a). When appropriate, changes made in the present rulemaking are also proposed for §§ 151.47 and 151.49.

Purpose and Objectives

This rulemaking is administrative in nature and is intended to update various Coast Guard hazardous materials tables in 46 CFR Parts 30, 150, 151, and 153 to include new chemicals and requirements authorized or soon to be authorized by Coast Guard regulations or international law. In general, the objectives of this rulemaking are as follows:

(a) Table 30.25-1 in Part 30, Table 151.05 in Part 151, and Tables 1 and 2 in Part 153 would be amended by adding:

(1) Cargoes recently authority for carriage by Coast Guard regulations;

(2) Cargoes included in International Maritime Organization (IMO) Chemical Codes ("International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk" (IBC Code), Chapter 18, and "Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk" (BCH Code), Chapter VII, but not yet included in Coast Guard regulations; and

(3) Newly upgraded or downgraded pollution categories and special carriage requirements for certain chemicals appearing in the July 19, 1988 report of the IMO Evaluation of Hazards Working Group (BCH 18/16). The BCH 18/16 changes are expected to be approved and made effective by the IMO Maritime Environment Protection Committee during March 1989. The effective date of final regulations under the present rulemaking will be set for a date after the BCH 18/16 changes become effective.

Under BCH 18/16, the following chemicals will be upgraded relative to the current international requirements in "Proposed and Provisional Entries in the IBC and BCH Codes" (MSC)/Circ.481; July 28, 1987):

- Alcohol (C_{12}–C_{15}) poly (3–11) ethoxylates
- Alcohol (C_6–C_{17}) poly (3–6) ethoxylates
- Alcohol (C_6–C_{17}) poly (7–12) ethoxylates
- Ammonium thiosuflate solution (60% or less)
- Butyl benzenes (all isomers)
- Coconut oil fatty acid
- Diglycidyl ether of Bisphenol F
- Dimethyl adipate
- Diphenyl
- Diphenyl/Diphenyl ether mixtures
- Ethyl phenol
- Lactonitrile solution (80% or less)
- Lauric acid
- Octyl nitrates (all isomers)
- Palm nut oil fatty acid
- Sodium thiocyanate solutions (56% or less)

Under BCH 18/16, the following chemicals will be downgraded relative to current requirements:

- Aluminum suflate solution
- Aviation alkylates (C_8 paraffins and iso-paraffins BPT 95–120°C)
- Cyclopentane
- Methyl cyclohexane
- Methyl ethyl ketone
- Octyl decyl adipate
- n-Paraffins (C_{10}–C_{20})
- n-Propyl alcohol
- Tridecane
- Triisopropanolamine

(b) The Compatibility of Cargoes tables in Part 150 would be amended to include chemicals added under this rulemaking to the hazardous materials tables in Parts 30, 151, and 153.

(c) New names for certain chemicals would be added as part of the Coast Guard's program to adopt IMO terminology and align usage throughout Coast Guard regulations (eg. "diphenyl oxide" would be changed to "diphenyl ether" wherever it appears throughout Parts 30, 150, and 153).

(d) Various changes and corrections would be made to align provisions

within Parts 30, 151, and 153 and to consolidate material.

Discussion of Specific Amendments

In addition to the changes discussed in the "Purpose and Objectives" section of this preamble, the following specific amendments are proposed:

(a) *Table 30.25–1.* A number of new chemical cargoes (indicated by an asterisk) would be added to Table 30.25–1. Several current cargo names (printed in boldface) would be changed to conform with the IMO terminology or to correct typographical errors. The "Alcohols (mixed)" entry would be deleted because this cargo is no longer produced or shipped by the manufacturer. The "Coal tar" entry listed under "Oils" would be listed separately. "Dodecane", "Dodecanol", "Dodecene", and "Dodecylbenzene" entries, which were inadvertently omitted in the March 12, 1987 version of Table 30.25–1 (52 FR 7774), would be added. "Aromatic (10% or less Benzene)" under the "Naphtha" heading would be revised to read "Aromatic (less than 10% Benzene)." Aromatic naphthas containing 10% or more benzene would use the "Benzene hydrocarbon mixtures" entry in Table 151.05 or Table 1 of Part 153. The "Petrolatum" entry, previously considered by the Coast Guard to be an "oil" under Annex I of the International Convention for the Prevention of Pollution from Ships 1973 (MARPOL 73/78), has been evaluated by the IMO and assigned to Appendix III of Annex II to MARPOL 73/78. This assignment to Appendix III would be reflected in Table 30.25–1.

(b) *Part 150, Tables I and II and Appendix I.* New cargoes added by this rulemaking to Table 30.25–1, Table 151.05, and Tables 1 and 2 of Part 153, along with their CHRIS Codes, would be added to Part 150. The CHRIS Code of several entries would be adjusted to reflect a new or changed CHRIS Code, several current cargo names modified or corrected, and obsolete entries deleted. "Ferric chloride solution", originally assigned to Group 43 (Miscellaneous Water Solutions), would be reassigned to Group 1 (Non-oxidizing Mineral Acids). This proposal results from discussions with the manufacturer during which it was concluded the Group 1 was the more appropriate Compatibility Group, considering the possible hazardous reaction with caustic materials.

New entries and changes to Table I and Appendix I are in boldface type; changes to Table II are indicated by bullets (●).

(c) *Table 151.01–10(b).* Table 151.01–10(b) (Cargoes Regulated by Subchapter O) would be removed and references in Part 151 to this table replaced with references to Table 151.05. This change would eliminate the administrative problems of ensuring that both tables are identical. This change would not affect the requirements applying to these cargoes.

(d) *Table 151.05.* New entries to Table 151.05 are indicated by an asterisk and changes to previous entries are in boldface. The special requirements for several cargoes recently authorized for carriage by the Coast Guard would be revised to bring the requirements for tank barges in Part 151 in line with the safety requirements for tankships in Part 153. In addition, several current cargo names would be modified or corrected and the table correctly alphabetized.

Several new entries in the "Special requirements" column would be added, two entries modified, and two obsolete entries deleted, as follows:

(1) A new § 151.50–73, "Chemical protective clothing", would be added to consolidate the numerous protective clothing sections listed throughout Part 151 for specific cargoes appearing in Table 151.05. In each case, the "Special requirements" column of the table would be changed to reference § 151.50–73.

Several cargoes which do not reference a protective clothing section would reference § 151.50–73 in the "Special requirements" column. This change would be made to align the clothing requirements in Part 151 with those in Part 153.

(2) Several cargoes which do not reference § 151.50–81, "Special operating requirements for heat sensitive cargoes", would reference that section in the "Special requirements" column of Table 151.05. This change would align Part 151 with Part 153.

(3) A new § 151.50–70, entitled "Cargoes requiring inhibition or stabilization", would be added to allow the word "inhibited" to be deleted from the "Cargo identification/Name" column of Table 151.05 and replaced by a reference to § 151.50–70 in the "Special requirements" column. This change would not affect the actual requirement, only the way it would be referenced in the table.

Several entries not referencing "inhibited" or "stabilized" would be subject to § 151.50–70 to align Part 151 with Part 153.

(4) New §§ 151.56–1, "Prohibited materials", and 151.58–1, "Required materials", would be added for reference in the "Special requirements" column of Table 151.05. These two "materials of construction" sections would be added to reflect the simpler designation method currently used by the tankship regulations in Part 153. This would allow simpler comparisons and translations of requirements between Parts 151 and 153. All presently listed cargoes would retain their same materials of construction requirements. The new materials of construction requirements would not affect the presently listed cargoes. However, an equivalency requirement would be listed following each of the current materials of construction requirements in § 151.55–1, thus allowing comparisons between old and new sections. New entries to Table 151.05 would reference only the new requirements, where assigned.

(5) In the special requirements section for vinyl chloride (§ 151.50–34), references to obsolete "29 CFR 1910.93q(g)" would be corrected to read "29 CFR 1910.1017".

Corrections of references to incorrect or obsolete requirements of Subchapter J—Electrical Engineering would be made to the Table 151.05, § 151.05–1(p), and § 151.50–42(e).

In the "Special requirements" column, the designation "151" would be deleted because all references are to Part 151. Section 151.05–1(o) would be revised by adding a statement explaining this deletion.

Seven cargoes would be deleted from Table 151.05. Three are no longer produced by the original manufacturers ("Chemical wastes (Mixture of chlorinated hydrocarbons and caustic materials"); "Industrial wastes, containing dimethyldisulfide, methyl mercaptan, and methomyl"; and "Polyvinylbenzyltrimethyl ammonium chloride solution"). Triisopropanolamine would be moved to Table 30.25–1 by this rulemaking. The remaining three entries ("Hydrofluoric acid", "Hydrogen chloride", and "Hydrogen fluoride") are not authorized cargoes and, therefore, do not belong in Table 151.05.

The "Cargo transfer/Piping class" column for the "Ethylene diamine" entry would be corrected to read "II" instead of "I". This would correct an error in the table and would be a reduction in requirements.

The word "inhibited" would be deleted from the "Ethylidene norbornene" entry because inhibition is required for product quality control, not for the safe transportation of this cargo.

The "Environmental control/Cargo handling space" column for the "Vinylacetate" entry would be corrected to read "Vent F" instead of "Vent", as now shown.

The items listed under "Footnotes" at the end of Table 151.05 would be deleted. Footnote number 1 is listed as "reserved". Footnote number 2 pertains to Ethylene oxide and was applied in the "Temperature control install." column until all reference to Footnote 2 were removed from that column in 1982. Footnote number 3 applied to "Hydrofluoric acid", "Hydrogen chloride", and "Hydrogen fluoride"—three entries already discussed as proposed for deletion by this rulemaking. Footnote number 4 would be replaced by a "Special requirement" entry referencing new § 151.25–1(e), concerning dry gas or vapor containment in cargo tanks.

The list of Pollution Category D NLS cargoes in § 151.12–5 would be revised by the addition of a number of new entries and the deletion of two incorrect entries.

(e) *Part 153, Table 1.* A number of new cargoes which are included in the IMO Chemical Codes but not in the Coast Guard regulations would be added. New entries to Table 1 are indicated with an asterisk and changes to previous entries are in boldface.

(f) *Part 153, Table 2.* A number of new cargoes would be added to Table 2, the "unregulated" cargo list. These include cargoes recently authorized by the Coast Guard, cargoes currently included in the IMO Chemical Codes but not included in Coast Guard regulations, and cargoes to be included in the IMO Chemical Codes.

New entries to Table 2 are indicated with an asterisk and changes to existing entries are in bold face.

E.O. 12291 and DOT Regulatory Policies and Procedures

These proposed regulations are considered to be non-major under Executive Order 12291 and nonsignificant under the Department of Transportation (DOT) regulatory policies and procedures (44 FR 11034; February 26, 1979). The economic impact of this proposal has been found to be so minimal that further evaluation is unnecessary. This rulemaking is administrative in nature and would merely update chemical tables by adding cargoes recently authorized by the Coast Guard or added to the IMO Chemical Codes and by making other non-substantive editorial changes and corrections.

Regulatory Flexibility Act

Because the impact of this proposal is expected to be minimal, the Coast Guard certifies under section 605(b) of the Regulatory Flexibility Act (5 U.S.C. 605(b)) that this proposal will not have a significant economic impact on a substantial number of small entities.

Paperwork Reduction Act

This proposed rulemaking contains no information collection or recordkeeping requirements.

Federalism Implications

This action has been analyzed in accordance with the principles and criteria contained in Executive Order 12612, and it has been determined that the proposed rulemaking does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Environmental Assessment

The Coast Guard has considered the environmental impact of the proposed regulations and concluded that, under section 2.B.2 of Commandant Instruction M16475.1B, the proposed regulations are categorically excluded from further environmental documentation. This rulemaking is an administrative update of tables listing chemicals already approved or soon to be approved under Coast Guard regulation or international law. A Categorical Exclusion Determination Statement has been prepared and is included in the regulatory docket.

List of Subjects

46 CFR Part 30

Administrative practice and procedures, Barges, Foreign relations, Hazardous materials transportation, Penalties, Tank vessels.

46 CFR Part 150

Hazardous materials transportation, Marine safety.

46 CFR Part 151

Barges, Flammable materials, Hazardous materials transportation, Marine safety, Tank vessels.

46 CFR Part 153

Barges, Hazardous materials transportation, Marine safety, Tank vessels.

For the reasons set out in the preamble, 46 CFR Parts 30, 150, 151, and 153 are proposed to be amended as follows:

PART 30—GENERAL PROVISIONS

1. The authority citation for Part 30 is revised to read as follows:

Authority: 46 U.S.C. 3507, 3703; 49 U.S.C. 1804; 49 CFR 1.46.

§ 30.10–35 [Amended]

2. In § 30.10–35, by removing "20591" and adding, in its place, "20593–0001".

3. In § 30.25–1, by revising Table 30.25–1 to read as follows:

§ 30.25–1 Cargoes carried in vessels certified under the rules of this subchapter.

* * * * *

TABLE 30.25-1--LIST OF FLAMMABLE AND COMBUSTIBLE BULK LIQUID CARGOES

Cargoes	Pollution Category
Acetone	III
Acetophenone	D
Acetyl tributyl citrate	#
*Acrylonitrile-Styrene copolymer dispersion in Polyether polyol	[D]
*Alcohols (C13 and above)	III
*Alcoholic beverages, n.o.s.	III
*Alcohol(C6 - C17)(secondary) poly(3-6)ethoxylates	A
*Alcohol(C6 - C17)(secondary) poly(7-12)ethoxylates	B
*Alcohol(C12 - C15) poly(1-3)ethoxylates	A
*Alcohol(C12 - C15) poly(3-11)ethoxylates	A
Alkenylsuccinic acid	#
Alkenylsuccinic anhydride	#
*Alkyl(C9 - C17) benzenes	D
Alkyl benzene sulfonic acid (4% or less)	#
Alkyl phthalates (n-) *see individual phthalates*	#
Alkyl succinate formaldehyde hydroxyamino condensate (3.2% or less)	#
*Aminoethyldiethanolamine, Aminoethylethanolamine solution	III
Amyl acetate (iso-, n-)	C
*Amyl alcohol (iso-, n-, sec-, primary)	D
*Amyl alcohol (tert-)	III
Amylene *see* Pentene (all isomers)	C
Amyl methyl ketone *see* Methyl amyl ketone	C
Amyl tallate	#
Asphalt	I
Asphalt blending stocks:	
Roofers flux	I
Straight run residue	I
Behenyl alcohol	III
*Benzene tricarboxylic acid trioctyl ester	III
Benzyl alcohol	C
Bicyclic terpenel polyamine amide salt	#
*Brake fluid base mixtures (*containing Poly(2-8)alkylene(C2 - C3) glycols, Polyalkylene(C2 - C10) glycol monoalkyl(C2 - C3) ethers, and their borate esters*)	D
Butane	LFG
Butene see Butylene	
*Butene oligomer	D
Butyl acetate (iso-, n-)	C
Butyl acetate (sec-)	D
Butyl alcohol (iso-, n-, sec-, tert-)	III
Butyl benzyl phthalate	A
Butylene	LFG
*Butylene glycol	D
1,3-Butylene glycol *see* **Butylene glycol**	D
Butylene polyglycol *see* **Butylene glycol**	@D
*iso-Butyl formate	D
*n-Butyl formate	@D
Butyl heptyl ketone	C

TABLE 30.25-1—LIST OF FLAMMABLE AND COMBUSTIBLE BULK LIQUID CARGOES—Continued

Cargoes	Pollution Category
Butyl methyl ketone *see* **Methyl butyl ketone**	D
Butyl stearate	III
Butyl toluene	@A
Butyrolactone (gamma)	D
Calcium alkylphenate	#
Calcium alkyl salicylate	D
Calcium amino nonyl phenolate	#
Calcium carboxylate	#
Caprolactam solutions	D
Carbon black base	#
Cetyl alcohol (*Hexadecanol*), *see* **Alcohols (C13 and above)**	@III
Cetyl-Stearyl alcohol	III
Cleaning spirit (unleaded)	#
*Coal tar	A
Cumene	B
Cycloaliphatic resins	#
Cyclohexane	C
Cyclohexanol	C
*1,3-Cyclopentadiene dimer (molten)	B
Cyclopentadiene polymers *see* **1,3-Cyclopentadiene dimer (molten)**	@B
Cymene (para-)	C
*Decahydronaphthalene	D
Decaldehyde (iso-)	C
Decaldehyde (n-)	B
Decane	D
Decene	B
Decyl alcohol (iso-, n-)	B
Decyl benzene (n-)	D
Detergent alkylate	#
Diacetone alcohol	D
*Dialkyl(C10 - C14) benzenes	[D]
*Dialkyl(C7 - C13) phthalates	D
Dibutyl carbinol	#
Dibutyl phthalate (ortho-)	A
Dicyclopentadiene *see* **1,3-Cyclopentadiene dimer (molten)**	B
Diethyl benzene	C
Diethylene glycol	III
Diethylene glycol butyl ether	III
Diethylene glycol butyl ether acetate	D
*Diethylene glycol dibutyl ether	D
Diethylene glycol diethyl ether	III
Diethylene glycol ethyl ether	III
Diethylene glycol ethyl ether acetate	D
Diethylene glycol methyl ether	C
Diethylene glycol methyl ether acetate	D
Diethylene glycol phenyl ether	[D]
*Diethylene glycol phthalate	[D]
*Di-(2-ethylhexyl)adipate	D
Di-(2-ethylhexyl)phthalate	D
Diethyl phthalate	C
Diglycidyl ether of Bisphenol A	B
Diheptyl phthalate	III
Dihexyl phthalate	III
Diisobutylcarbinol	@C
Diisobutylene	B
Diisobutyl ketone	D
Diisobutyl phthalate	B
Diisodecyl phthalate	D
*Diisononyl adipate	D
Diisononyl phthalate	D
Diisooctyl phthalate	III
Diisopropyl benzene	A
Diisopropyl naphthalene	D
*Dimethyl adipate	B
Dimethyl benzene *see* **Xylenes**	C
*Dimethyl glutarate	C
Dimethyl phthalate	C
Dimethyl polysiloxane	[III]
2,2-Dimethylpropane-1,3-diol	D
*Dimethyl succinate	C
Dinonyl phthalate	D

TABLE 30.25-1—LIST OF FLAMMABLE AND COMBUSTIBLE BULK LIQUID CARGOES—Continued

Cargoes	Pollution Category
Di(octylphenyl)amine	#
Dioctyl phthalate	III
Dipentene	C
Diphenyl	A
Diphenyl, Diphenyl **ether**	A
Diphenyl ether	A
*Diphenyl ether, Biphenyl phenyl ether mixtures	A
Dipropylene glycol	III
Dipropylene glycol dibenzoate	[D]
Dipropylene glycol methyl ether	D
Distillates:	
Flashed feed stocks	I
Straight run	I
*Ditridecyl phthalate	D
Diundecyl phthalate	D
*Dodecane (all isomers)	III
*Dodecanol	B
*Dodecene	B
*Dodecylbenzene	III
Dodecylphenol	A
*Drilling mud (low toxicity) (*if flammable or combustible*)	[III]
Epoxylated linear alcohols, C11-C15	#
Ethane	LFG
2-Ethoxyethanol	D
2-Ethoxyethyl acetate	C
Ethoxylated alcohols, C11-C15 *see the Alcohol polyethoxylates*	A/B
Ethoxy triglycol (*crude*)	D
Ethyl acetate	D
*Ethyl acetoacetate	D
Ethyl alcohol	III
Ethyl amyl ketone	C
Ethyl benzene	C
Ethyl butanol	@D
*Ethyl butyrate	C
Ethyl cyclohexane	D
Ethylene	LFG
Ethylene carbonate	III
Ethylene glycol	D
*Ethylene glycol acetate	D
Ethylene glycol butyl ether	III
Ethylene glycol butyl ether acetate	D
*Ethylene glycol tert-butyl ether	III
Ethylene glycol diacetate	C
*Ethylene glycol dibutyl ether	[D]
Ethylene glycol ethyl ether, *see* **2-Ethoxyethanol**	D
Ethylene glycol ethyl ether acetate, *see* **2-Ethoxyethyl acetate**	C
Ethylene glycol isopropyl ether	D
Ethylene glycol methyl butyl ether	D
Ethylene glycol methyl ether	D
Ethylene glycol methyl ether acetate	D
Ethylene glycol phenyl ether	D
*Ethylene glycol phenyl ether, Diethylene glycol phenyl ether mixture	D
Ethylene-Propylene copolymer (*in liquid mixtures*)	[III]
*Ethyl-3-ethoxypropionate	[B]
Ethylhexaldehyde *see* Octyl aldehydes	@B
2-Ethylhexanoic acid	D
2-Ethylhexanol *see* **Octanol (all isomers)**	@C
Ethylhexoic acid *see* **2-Ethylhexanoic acid**	D
Ethyl hexyl phthalate	C
Ethyl hexyl tallate	#
*Ethyl propionate	D
Ethyl toluene	B
*Fatty acid (saturated, C13 and above)	III
Fatty acid amides	#
Formamide	D

TABLE 30.25-1—LIST OF FLAMMABLE AND COMBUSTIBLE BULK LIQUID CARGOES—Continued

Cargoes	Pollution Category
Furfuryl alcohol	C
Gas oil, cracked	I
Gasoline blending stocks:	
Alkylates	I
Reformates	I
Gasolines:	
Automotive (*containing not over 4.23 grams lead per gallon*)	I
Aviation (*containing not over 4.86 grams lead per gallon*)	I
Casinghead (*natural*)	I
Polymer	I
Straight run	I
Glycerine	III
Glycerol *see* **Glycerine**	III
*Glycerol polyalkoxylate	III
Glyceryl triacetate	III
Glycidyl ester of tertiary carboxylic acid *see* **Glycidyl ester of tridecyl acetic acid**	@B
*Glycidyl ester of tridecyl acetic acid	B
Glycidyl ester of versatic acid *see* **Glycidyl ester of tridecyl acetic acid**	@B
Glycol diacetate *see* **Ethylene glycol diacetate**	C
Glycols, Resins, & Solvents mixture	#
Glycol triacetate, *see* **Glyceryl triacetate**	III
Glyoxal **solution** (40% **or less**)	D
Grease	#
Heptadecane	@III
*Heptane (iso-)	C
Heptane **(n-)**	C
Heptanoic acid	D
Heptanol	C
Heptene	C
Herbicide (C15 -H22 -NO2 -Cl) *see* **Metolachlor**	@B
Hexaethylene glycol	@III
Hexamethylene glycol	III
*Hexamethylenetetramine solutions	D
*Hexane **(all isomers)**	C
*Hexanoic acid	D
1-Hexanol	D
Hexene **(all isomers)**	C
Hexyl acetate	B
Hexylene glycol	III
Hog grease, *see* **Lard**	@III
*2-Hydroxy-4-(methylthio)butanoic acid	[C]
*Hydroxy terminated polybutadiene *see* **Polybutadiene, hydroxyl terminated**	
Isophorone	D
Jet fuels:	
JP-1 (*kerosene*)	I
JP-3	I
JP-4	I
JP-5 (*kerosene, heavy*)	I
*JP-8	@I
Kerosene	I
Lactic acid	D
Lard	III
Latex, liquid synthetic *including:*	III
*Styrene-butadiene rubber latex	III
*Carboxylated styrene-butadiene copolymer	III
Magnesium nonyl phenol sulfide	#
Magnesium sulfonate	#
Maleic anhydride copolymer	#
2-Mercaptobenzothiazol (*in liquid mixtures*)	#
Methane	LFG

TABLE 30.25-1--LIST OF FLAMMABLE AND COMBUSTIBLE BULK LIQUID CARGOES—Continued

Cargoes	Pollution Category
*3-Methoxy-1-butanol	III
*3-Methoxybutyl acetate	D
*1-Methoxy-2-propyl acetate	#
Methoxy triglycol *see* **Triethylene glycol methyl ether**	@D
Methyl acetate	III
Methyl acetoacetate	D
Methyl alcohol	III
Methyl amyl acetate	C
Methyl amyl alcohol	C
Methyl amyl ketone	C
Methyl butanol *see the* **Amyl alcohols**	D
*Methyl butenol	D
*Methyl butyl ketone	D
*Methyl butynol	D
*Methyl butyrate	C
Methyl ethyl ketone	III
Methyl formal (*dimethyl formal*)	#
Methyl heptyl ketone	B
Methyl isobutyl carbinol *see* **Methyl amyl alcohol**	C
Methyl isobutyl ketone	D
*3-Methyl-3-methoxybutanol	III
*3-Methyl-3-methoxybutyl acetate	III
Methyl naphthalene	A
Methyl pentene	C
N-Methyl pyrrolidone	B
Methyl tert-butyl ether	D
*Metolachlor	@B
Mineral spirits	I
*Myrcene	[B]
Naphtha:	
*Aromatic (*having less than 10% Benzene*)	@I
Cracking fraction	@I
Heavy	@I
Paraffinic	@I
Petroleum	I
Solvent *see* **Coal tar naphtha solvent**	B
Stoddard Solvent	@I
Varnish makers' and painters' (75%)	@I
*Naphthalene sulfonic acid-formaldehyde copolymer, sodium salt solution	D
Naphthenic acid	A
Nonane **(all isomers)**	C
Nonanoic acid **(all isomers)**	D
Nonanoic, Tridecanoic acid mixture	@D
Nonene	B
Nonyl alcohol **(all isomers)**	[C]
*Nonyl methacrylate	[D]
Nonyl phenol	A
*Nonyl phenol **poly(4-12)**ethoxylates	B
Nonyl phenol sulfide (90% or less)	#
*Noxious liquid, n.o.s. (17) ("trade name," contains "principal components"), Category D (*if flammable or combustible*)	D
*Non-noxious liquid, n.o.s. (18) ("trade name," contains "principal components"), Appendix III (*if flammable or combustible*)	III
Octadecene, *see the Olefin or alpha-Olefin entries*	@III
Octadecenoamide solution (*Oleamide*)	[D]
Octane **(all isomers)**	C
*Octanoic acid	D
*Octanol (all isomers)	C
Octene	B
Octyl acetate	D
Octyl alcohol (iso-, n-) *see* **Octanol (all isomers)**	C

TABLE 30.25-1--LIST OF FLAMMABLE AND COMBUSTIBLE BULK LIQUID CARGOES—Continued

Cargoes	Pollution Category
*Octyl aldehydes	B
*Octyl decyl adipate	III
Octyl epoxytallate	#
Octyl phthalate *see* **Di-(2-ethylhexyl)phthalate**	@D
Oil, edible:	
Babassu	D
Beechnut	D
Castor	D
Cocoa butter	D
Coconut	D
Cod liver	D
Corn	D
Cottonseed	D
Fish	D
Grapeseed	#
Groundnut	D
Hazelnut	D
Lard	@III
Maize *see* **Corn oil**	D
Mustard seed	#
Nutmeg butter	D
Olive	D
Palm	D
*Palm nut	D
Peanut	D
Poppy	D
Raisin seed	D
Rapeseed	D
Rice bran	D
Safflower	D
Salad	D
Sesame	D
Soya bean	D
*Sunflower	D
Sunflower seed	#
Tucum	D
Vegetable, **n.o.s.**	D
Walnut	D
Oil, fuel:	
No. 1 (*kerosene*)	I
No. 1-D	I
No. 2	I
No. 2-D	I
No. 4	I
No. 5	I
No. 6	I
Oil, misc:	
Absorption	@I
Aliphatic	@I
Animal, **n.o.s.**	D
Aromatic	I
Aviation F2300	@I
Clarified	I
Coal	#
*Coconut oil, esterified	D
*Coconut oil, fatty acid	C
Coconut oil, fatty acid methyl ester	D
*Coconut oil, methyl ester	#
*Cottonseed, fatty acid *see* **Cottonseed oil, fatty acid**	C
Croton	#
Crude	I
Diesel	I
Gas, low pour	@I
Gas, low sulfur	@I
Heartcut distillate	I
Lanolin	D
Linseed	D
Lubricating	I
Mineral	I
Mineral seal	@I
Motor	I
Neatsfoot	D
Oiticica	D

TABLE 30.25-1--LIST OF FLAMMABLE AND COMBUSTIBLE BULK LIQUID CARGOES—Continued

Cargoes	Pollution Category
*Palm oil, fatty acid	[III]
*Palm oil, fatty acid methyl ester	D
Palm oil, methyl ester	D
Penetrating	I
Perilla	D
Pilchard	D
Pine	B
Range	@I
Residual	I
Resin	#
Resinous petroleum	@I
Road	I
Rosin	A
Seal	I
Soapstock	#
*Soya bean (epoxidized)	#
Sperm	D
Spindle	I
Spray	#
Tall	B
Tall, fatty acid	C
Tanner's	#
Transformer	I
Tung	D
Turbine	I
Whale	D
White (mineral)	@I
Wood	#
*alpha-Olefins (C13 - C18)	III
*Olefins (C13 and above, all isomers)	III
Oleic acid	D
Oleyl alcohol (*Octadecenol*), *see* **Alcohols (C13 and above)**	@III
Organic amine 70 *see* **Aminoethyl-diethanolamine, Aminoethyl- ethanolamine solution**	III
*Palm stearin	D
*n-Paraffins (C10 - C20)	III
Pentadecanol, *see* **Alcohols (C13 and above)**	@III
Pentaethylene glycol, *see* **Polyethylene glycols**	III
*Pentaethylenehexamine	D
Pentane **(all isomers)**	C
*Pentanoic acid	D
Pentene **(all isomers)**	C
Petrolatum	III
*1-Phenyl-1-xylyl ethane	C
Phosphosulfurized bicyclic terpene	#
Phthalate plasticizers *see individual phthalates*	#
Pinene	B
Polyalkenyl succinic anhydride amine	#
*Polyalkylene glycols, Polyalkylene glycol monoalkyl ethers mixtures	D
*Polyalkylene oxide polyol	[C]
Polyamine, amide mixture	#
*Polybutadiene, hydroxyl terminated	[III]
Polybutene	III
*Polydimethylsiloxane	#
Polyethylene glycols	III
*Polyethylene glycol dimethyl ether	III
*Polyglycerol	[III]
Polyisobutylene	[III]
Polymerized esters	#
*Poly(20)oxyethylene sorbitan monooleate	[B]
Polypropylene	[III]
Polypropylene glycols	D
Polypropylene glycol methyl ether	III
*Polysiloxane	III
Polystyrene dialkyl maleate	#
*Potassium oleate	[D]
Propane	LFG
*n-Propoxypropanol	#
Propyl acetate (iso-)	III

TABLE 30.25-1--LIST OF FLAMMABLE AND COMBUSTIBLE BULK LIQUID CARGOES—Continued

Cargoes	Pollution Category
Propyl acetate (n-)	D
Propyl alcohol (iso-)	III
Propyl alcohol (n-)	III
Propyl benzene (iso-) *see* Cumene	B
Propyl benzene (n-)	C
*iso-Propylcyclohexane	D
Propylene	LFG
Propylene-butylene **copolymer**	III
*Propylene dimer	C
Propylene glycol	III
*Propylene glycol monoalkyl ether	D
Propylene glycol ethyl ether	D
Propylene glycol methyl ether	D
Propylene polymer (*in liquid mixtures*)	#
Propylene tetramer	B
Propylene trimer	B
Pseudocumene *see* **Trimethylbenzenes**	B
Rum, *see* **Alcoholic beverages, n.o.s.**	@III
Sodium acetate, Glycol, Water solutions	#
*Sodium acetate solution	[D]
*Sodium benzoate solution	[D]
Sodium sulfonate	#
Stearic acid	@III
Stearyl alcohol (*Octadecanol*)	III
Sulfolane	III
Tallow	D
Tallow alcohol, *see* **Alcohols (C13 and above)**	@III
Tallow fatty acid	D
Tallow nitrile	#
Tetradecanol	III
Tetradecene, *see the Olefin or alpha-Olefin entries*	III
Tetradecyl benzene	C
Tetraethylene glycol	III
Tetrahydronaphthalene	C
Tetrapropyl benzene *see* **Alkyl(C9-C17) benzenes**	@D
Toluene	C
Triarylphosphate	A
Tributyl phosphate	B
*Tricresyl phosphate (less than 1% ortho isomer)	A
Tridecane	III

TABLE 30.25-1--LIST OF FLAMMABLE AND COMBUSTIBLE BULK LIQUID CARGOES—Continued

Cargoes	Pollution Category
Tridecanoic acid	III
Tridecanol, *see* **Alcohols (C13 and above)**	III
Tridecene	III
Tridecyl benzene, *see* **Alkyl(C9-C17) benzenes**	D
Triethyl benzene	A
Triethylene glycol	III
*Triethylene glycol butyl ether	III
Triethylene glycol butyl ether mixture	#
Triethylene glycol di-(2-ethylbutyrate)	C
Triethylene glycol ether mixture	#
*Triethylene glycol ethyl ether	D
Triethylene glycol methyl ether	D
Triethyl phosphate	D
Triisooctyl trimellitate	#
*Triisopropanolamine	III
Trimethylbenzenes **(all isomers)**	B
*Trimethylol propane polyethoxylate	D
2,2,4-Trimethylpentanediol-1,3-diisobutyrate	#
2,2,4-Trimethyl-3-pentanol-1-isobutyrate	#
Tripropylene *see* **Propylene trimer**	@B
Tripropylene glycol	III
Tripropylene glycol methyl ether	D
Trixylenyl phosphate	A
Turpentine	B
Turpentine substitute (White spirit) *see* **White spirit (low (15-20%) aromatic)**	@B
Undecanol	B
Undecene	B
Undecylbenzene	C
Vinyl acetate-fumarate copolymer	#
Waxes:	[D]
Candelilla	@D
Carnauba	@D
Paraffin	III
Petroleum	#
White spirit *see* **White spirit (low (15-20%) aromatic)**	@B
*White spirit **(low (15-20%) aromatic)**	B
Wine	III
Wool grease	#
Xylenes (*ortho-, meta-, para-*)	C

TABLE 30.25-1--LIST OF FLAMMABLE AND COMBUSTIBLE BULK LIQUID CARGOES—Continued

Cargoes	Pollution Category
Zinc dialkyldithiophosphate	#

* denotes newly added products.
Entries in **boldface** are changes.

Explanation of Symbols: As used in this table the following stands for:

A, B, C, D -- NLS Category of Annex II of MARPOL 73/78.

I -- Considered an "oil" under Annex I of MARPOL 73/78.

III -- Appendix III of Annex II (non-NLS cargoes) of MARPOL 73/78.

LFG -- Liquefied flammable gas.

-- No determination of NLS status. For shipping on an oceangoing vessel, see 46 CFR 153.900(c).

[] -- A NLS category in brackets indicates that the product is provisionally categorized and that further data are necessary to complete the evaluation of its pollution hazards. Until the hazard evaluation is completed, the pollution category assigned is used.

@ -- The NLS category has been assigned by the U.S. Coast Guard, in absence of one assigned by the IMO, based upon a GESAMP Hazard Profile or by analogy to a closely related product having one assigned.

Words in italics are not part of the the cargo name but may be used in addition to the cargo name.

When one entry references another entry by use of the word "*see*", and both names are in roman type, either name may be used as the cargo name (e.g., Diethyl ether *see* Ethyl ether). However, the referenced entry is preferred.

PART 150—COMPATIBILITY OF CARGOES

4. The authority citation for Part 150 continues to read as follows:

Authority: 46 U.S.C. 3703; 49 CFR 1.46, except § 150.160 which is issued under 46 U.S.C. 3306; 49 CFR 1.46.

5. In Part 150, by revising Table I, Table II, and Appendix I to read as follows:

TABLE I - ALPHABETICAL LIST OF CARGOES

[Entries in **boldface** are new additions or changes]

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Acetaldehyde	19	AAD	
Acetic acid	[2] 4	AAC	
Acetic anhydride	11	ACA	
Acetone	[2] 18	ACT	
Acetone cyanohydrin	[1,2] 0	ACY	
Acetonitrile	37	ATN	
Acetophenone	18	ACP	
Acetyl tributyl citrate	34		
Acrolein	[2] 19	ARL	
Acrylamide solution	10	AAM	
Acrylic acid	[2] 4	ACR	
Acrylonitrile	[2] 15	ACN	
Acrylonitrile-Styrene copolymer dispersion in Polyether polyol	**20**	**ALE**	
Adiponitrile	37	ADN	
Alcohols (C13 and above)	**20**		**TDN/TTN/PDC**
Alcoholic beverages	**20**		
Alcohol polyethoxylates	**20**		**APK/APL**
Alcohol polyethoxylates, secondary	**20**		**AEA/AEB**

TABLE I - ALPHABETICAL LIST OF CARGOES—Continued

[Entries in **boldface** are new additions or changes]

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Alkyl acrylate-Vinyl pyridine copolymer in Toluene	32	AAP	
Alkyl(C9 - C17) benzenes	32	**AKB**	**DBZ/UDB/DDB/TRB/TDB**
Alkyl benzene sulfonic acid	[1,2] 0	ABS	
Alkyl benzene sulfonic acid, sodium salt solutions	**33**	**ABT**	
Alkyl phthalates	34		
Allyl alcohol	[3] 15	ALA	
Allyl chloride	15	ALC	
Aluminium chloride, Hydrochloric acid solution	**0**	**AHS**	
Aluminum sulfate solution	[3] 43	ASX	ALM
2-(2-Aminoethoxy)ethanol	8	AEX	
Aminoethyldiethanolamine, Aminoethylethanolamine solution	**8**		
Aminoethylethanolamine	8	AEE	
N-Aminoethylpiperazine	7	AEP	
2-Amino-2-hydroxymethyl-1,3-propanediol solution	43	AHL	
2-Amino-2-methyl-1-propanol	8	APR	
Ammonia, anhydrous	6	AMA	
Ammonium bisulfite solution	[3] 43	ABX	ASU
Ammonium hydrogen phosphate solution	**0**		
Ammonium hydroxide (28% or less Ammonia)	6	AMH	
Ammonium nitrate solution	[1] 0	ANR	AMN
Ammonium nitrate, Urea solution (containing Ammonia)	6	UAS	
Ammonium nitrate, Urea solution (not containing Ammonia)	43	ANU	
Ammonium polyphosphate solution	43		
Ammonium sulfate solution	43	**AME**	AMS
Ammonium sulfide solution	5	ASS	ASF
Ammonium thiocyanate, Ammonium thiosulfate solution	**0**	**ACS**	
Ammonium thiosulfate solution	43	ATV	
Amyl acetate	34		IAT/AML/AAS/AYA/AEC
Amyl alcohol	20		IAA/AAN
Amylene	30	**AMZ**	**PTX/PTE**
Amyl methyl ketone	18	AMK	
Amyl tallate	34		
Aniline	9	ANL	
Anthracene oil (Coal tar fraction)	33	AHO	
Asphalt	33	ASP	
Asphalt blending stocks, roofers flux	33	ARF	
Asphalt blending stocks, straight run residue	33	ASR	
Aviation alkylates	**33**	**AVA**	**GAV**
Behenyl alcohol	20		
Benzene	32	BNZ	
Benzene hydrocarbon mixtures (having 10% Benzene or more)	32	BHB	
Benzenesulfonyl chloride	[1,2] 0	BSC	
Benzene, Toluene, Xylene mixtures	32	BTX	
Benzene tricarboxylic acid trioctyl ester	**34**		
Benzyl acetate	**34**	**BZE**	
Benzyl alcohol	21	BAL	
Benzyl chloride	36	BCL	
Brake fluid base mixtures	**20**	**BFX**	
Butadiene	30	BDI	
Butadiene, Butylene mixtures (cont. Acetylenes)	30	BBM	
Butane	31	BMX	IBT/BUT
Butene	30	BTN	IBL
Butene oligomer	**30**	**BOL**	
Butyl acetate	34		IBA/BCN/BTA/BYA
Butyl acrylate	14	BAR	BAI/BTC
Butyl alcohol	[3] 20		IAL/BAN/BAS/BAT
Butylamine	7	BTY	IAM/BAM/BTL/BUA
Butyl benzene	32	BBE	
Butyl benzyl phthalate	34	BPH	
n-Butyl butyrate	**34**	**BUB**	
Butylene	30		BTN/IBL
Butylene glycol	[3] 20	**BUG**	
Butylene oxide	16	BTO	

TABLE I - ALPHABETICAL LIST OF CARGOES—Continued

[Entries in **boldface** are new additions or changes]

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Butyl ether	41	BTE	
Butyl formate	34	BFN	BFI
iso-Butyl isobutyrate	34	BIB	
Butyl heptyl ketone	18	BHK	
Butyl methacrylate	14	BMH	BMI/BMM/BMN
Butyl methacrylate, Decyl methacrylate, Cetyl-Eicosyl methacrylate mixture	14	DER	
Butyl phenol, Formaldehyde resin in Xylene	52		
Butyl toluene	32	BUE	
Butyraldehyde	19	BAE	BAD/BTR/BFA
Butyric acid	4	BRA	IBR
gamma-Butyrolactone	[1,2] 0	BLA	
Calcium bromide solution	43		
Calcium bromide, Zinc bromide solution *see* Drilling brine (containing Zinc salts)	43		DZB
Calcium chloride solution	43	CCS	CLC
Calcium hypochlorite solutions	5		CHZ/CHU
Calcium naphthenate in Mineral oil	34	CNM	
Calcium nitrate, Magnesium nitrate, Potassium chloride solution	34		
Calcium sulfonate, Calcium carbonate, Hydrocarbon solvent mixture	33		
Camphor oil	18	CPO	
Caprolactam solution	22	CLS	
Carbolic oil	21	CBO	
Carbon black base	33		
Carbon disulfide	38	CBB	
Carbon tetrachloride	36	CBT	
Cashew nut shell oil (untreated)	4	CCN	
Caustic potash solution	[2] 5	CPS	
Caustic soda solution	[2] 5	CSS	
Cetyl-Eicosyl methacrylate	14	CEM	
Chlorinated paraffins (C10 - C13)	36	CLH	
Chlorinated paraffins (C14 - C17)	36		
Chlorine	[1] 0	CLX	
Chloroacetic acid solution	4	CHM	CHL/MCA
Chlorobenzene	36	CRB	
Chlorodifluoromethane	36	MCF	
Chloroform	36	CRF	
Chlorohydrins	17	CHD	
4-Chloro-2-methylphenoxyacetic acid, Dimethylamine salt solution	9	CDM	
Chloronitrobenzene *see* o-Nitrochlorobenzene			CNO/CNP
Chloropropionic acid	4	CPM	CLA/CLP
Chlorosulfonic acid	[1] 0	CSA	
Chlorotoluene	35	CHI	CTM/CTO/CRN
Choline chloride solutions	20		
Coal tar	33	COR	DCT
Coal tar pitch	33	CTP	
Coconut oil, fatty acid	34	CFA	
Corn syrup	43	CSY	
Cottonseed oil, fatty acid	34	CFY	
Creosote	[2] 21	CCT	CCW/CWD
Cresols	21	CRS	CRL/CRO/CSO
Cresylate spent caustic	5	CSC	
Cresylic acid	21	CRY	
Cresylic acid, sodium salt solution	5		CSC
Crotonaldehyde	[2] 19	CTA	
Cumene	52	CUM	
Cycloaliphatic resins	31		
1,5,9-Cyclododecatriene	30	CYT	
Cycloheptane	31	CYE	
Cyclohexane	31	CHX	
Cyclohexane oxidation product acid water	4		
Cyclohexanol	20	CHN	
Cyclohexanone	18	CCH	
Cyclohexanone, Cyclohexanol mixtures	[2] 18	CYX	
Cyclohexyl acetate	34	CYC	
Cyclohexylamine	7	CHA	
1,3-Cyclopentadiene dimer	30	DPT	
Cyclopentadiene polymers	30		DPT
Cyclopentadiene, Styrene, Benzene mixtures	30	CSB	
Cyclopentane	31	CYP	
Cyclopentene	30	CPE	

TABLE I - ALPHABETICAL LIST OF CARGOES—Continued

[Entries in **boldface** are new additions or changes]

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Cymene	32	CMP	
Decahydronaphthalene	33	DHN	
Decaldehyde	19		IDA/DAL
Decane	31	DDC	PFN
Decanoic acid	4	DCO	
Decene	30	DCE	
Decyl acrylate	14	DAT	IAI/DAR
Decyl alcohol	[2] 20	DAX	ISA/DAN
Decyl benzene	32	DBZ	AKB
Dextrose solution	43	DTS	
Diacetone alcohol	[2] 20	DAA	
Dialkyl(C10 - C14) benzenes	32	DAB	
Dialkyl(C7 - C13) phthalates	34	DAH	DHP/DIE/DOP/DIF/DTP
Diammonium salt of Zinc EDTA solution	43	DSZ	
Dibutylamine	7	DBA	
Dibutyl phthalate	34	DPA	
Dichlorobenzene	36	DBX	DBM/DBO/DBP
Dichlorodifluoromethane	36	DCF	
1,1-Dichloroethane	36	DCH	
2,2'-Dichloroethyl ether	41	DEE	
2,2'-Dichloroisopropyl ether	36	DCI	
Dichloromethane	36	DCM	
2,4-Dichlorophenol	21	DCP	
2,4-Dichlorophenoxyacetic acid, Diethanolamine salt solution	43	DDE	
2,4-Dichlorophenoxyacetic acid, Dimethylamine salt solution	[1,2] 0	DAD	DDA/DSX
2,4-Dichlorophenoxyacetic acid, Triisopropanolamine salt solution	[2] 43	DTI	
Dichloropropane	36	DPX	DPB/DPP/DPC/DPL
1,3-Dichloropropene	15	DPS	DPF/DPU
Dichloropropene, Dichloropropane mixtures	15	DMX	
2,2-Dichloropropionic acid	4	DCN	
Dicyclopentadiene	30	DPT	
Didecyl dimethyl ammonium chloride, Ethanol mixture solution	43	DDX	
Diethanolamine	8	DEA	
Diethanolamine salt of 2,4-Dichlorophenoxy acetic acid solution	43	DDE	
Diethylamine	7	DEN	
Diethylaminoethanol	8		DAE
2,6-Diethylaniline	9	DMN	
Diethylbenzene	32	DEB	
Diethylene glycol	40	DEG	
Diethylene glycol dibutyl ether	40	DIG	
Diethylene glycol ethyl ether acetate	34	DGA	
Diethylene glycol methyl ether	40	DGM	
Diethylene glycol methyl ether acetate	34	DGR	
Diethylene glycol butyl ether	40	DME	
Diethylene glycol butyl ether acetate	34	DEM	
Diethylene glycol ethyl ether	40	DGE	
Diethylene glycol phenyl ether	40	DGP	
Diethylene glycol phthalate	34	DGL	
Diethylenetriamine	[2] 7	DET	
Diethylethanolamine	8	DAE	
Di-(2-ethylhexyl)adipate	34	DEH	
Di-(2-ethylhexyl)phosphoric acid	1	DEP	
Di-(2-ethylhexyl)phthalate	34		DIO/DOP/DAH
Diethyl phthalate	34	DPH	
Diethyl sulfate	34	DSU	
Diglycidyl ether of Bisphenol A	41	BDE	BPA
Diglycidyl ether of Bisphenol F	41	DGF	
Diheptyl phthalate	34	DHP	
Di-n-hexyl adipate	34	DHA	
Diisobutylamine	7	DBU	
Diisobutyl carbinol	20	DBC	
Diisobutylene	30	DBL	
Diisobutyl ketone	18	DIK	
Diisobutyl phthalate	34	DIT	
Diisodecyl phthalate	34	DID	
Diisononyl adipate	34	DNY	
Diisononyl phthalate	34	DIN	

TABLE I - ALPHABETICAL LIST OF CARGOES—Continued

[Entries in **boldface** are new additions or changes]

Chemical name	Group No.	CHRIS Code	Related CHRIS Codes
Diisooctyl phthalate	34	DIO	
Diisopropanolamine	8	DIP	
Diisopropylamine	7	DIA	
Diisopropyl benzene	32	DIX	
Diisopropyl naphthalene	32	DII	
N,N-**Dimethylacetamide**	10	DAC	
N,N-Dimethylacetamide solution	10	**DLS**	
Dimethyl adipate	34	**DLA**	
Dimethylamine	7	DMA	DMC/DMG/DMY
Dimethylamine solution	7		DMC/DMG/DMY
Dimethylamine salt of 4-Chloro-2-methylphenoxyacetic acid solution	9	CDM	
Dimethylamine salt of 2,4-Dichlorophenoxyacetic acid solution	1,2 0	**DAD**	DDA/DSX
2,6-Dimethylaniline	9	**DMM**	
Dimethylcyclicsiloxane hydrolyzate	34		
N,N-Dimethylcyclohexylamine	7	DXN	
Dimethylethanolamine	8	DMB	
Dimethylformamide	10	DMF	
Dimethyl furan	41		
Dimethyl glutarate	34	**DGT**	
Dimethyl hydrogen phosphite	2 34	DPI	
Dimethyl naphthalene sulfonic acid, sodium salt solution	2 34	**DNS**	
2,2-Dimethyloctanoic acid	7	DMO	
Dimethyl phthalate	34	DTL	
Dimethyl polysiloxane	34	DMP	
2,2-Dimethylpropane-1,3-diol	20	**DDI**	
Dimethyl succinate	34	**DSE**	
Dinonyl phthalate	34	**DIF**	**DAH**
Dinitrotoluene	42	DNM	DTT/DNL/DNU
Dioctyl phthalate	34	DOP	**DAH**
1,4-Dioxane	41	DOX	
Dipentene	30	DPN	
Diphenyl	32	DIL	
Diphenyl, Diphenyl **ether**	33	DDO	DTH
Diphenyl ether	41	DPE	
Diphenylmethane diisocyanate	12	DPM	
Diphenylol propane-Epichlorohydrin resins	1 0	DPR	
Diphenyl **ether**, Diphenyl phenyl ether mixture	41	DOB	
Di-n-Propylamine	7	DNA	
Dipropylene glycol	40	DPG	
Dipropylene glycol dibenzoate	34	**DGY**	
Dipropylene glycol methyl ether	40	**DPY**	
Distillates, flashed feed stocks	33	DFF	
Distillates, straight run	33	DSR	
Ditridecyl phthalate	34	**DTP**	**DAH**
Diundecyl phthalate	34	DUP	
Dodecane	31		**DOC/PFN**
Dodecanol	20	DDN	LAL
Dodecene	30	DOZ	DDC/DOD
2-Dodecenylsuccinic acid, dipotassium salt solution	34		
Dodecylamine, Tetradecylamine mixture	2 7	DTA	
Dodecyl alcohol	20	DDN	LAL
Dodecylbenzene	32	DOB	**AKB**
Dodecylbenzenesulfonic acid	2 0	**DSA**	
Dodecyl diphenyl **ether** disulfonate solution	43	DOS	
Dodecyl methacrylate	14	DDM	
Dodecyl-Pentadecyl methacrylate	14	DDP	
Dodecyl phenol	21	DOL	
Drilling brine (containing Calcium or Sodium salts)	43		
Drilling brine (containing Zinc salts)	43	**DBZ**	
Drilling mud (low toxicity) (if flammable or combustible)	33		
Drilling mud (low toxicity) (if non-flammable or non-combustible)	43		
Epichlorohydrin	17	EPC	
Epoxy resin	18		
Ethane	31	ETH	
Ethanolamine	8	MEA	
2-Ethoxyethanol	20	**EEO**	
2-Ethoxyethyl acetate	34	EEA	

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TABLE I - ALPHABETICAL LIST OF CARGOES—Continued

[Entries in **boldface** are new additions or changes]

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Ethoxylated alcohols, C11-C15	20		EOD/ENP/ EOP/EOT/ ETD
Ethoxy triglycol	40	ETG	
Ethyl acetate	34	ETA	
Ethyl acetoacetate	34	EAA	
Ethyl acrylate	14	EAC	
Ethyl alcohol	[2] 20	EAL	
Ethylamine	[2] 7	EAM	
Ethylamine solution	7	EAN	
Ethyl amyl ketone	**18**	**EAK**	
Ethyl benzene	32	ETB	
Ethyl butanol	20	EBT	
N-Ethyl-n-butylamine	7	EBA	
Ethyl butyrate	34	EBR	
Ethyl chloride	36	ECL	
Ethyl chlorothioformate	**[2] 0**	**ECT**	
N-Ethyl cyclohexylamine	7	ECC	
Ethylene	30	ETL	
Ethylene chlorohydrin	20	ECH	
Ethylene cyanohydrin	20	ETC	
Ethylenediamine	[2] 7	EDA	EMX
Ethylene diamine tetracetic acid, tetrasodium salt solution	**43**	**EDS**	
Ethylene dibromide	36	EDB	
Ethylene dichloride	[2] 36	EDC	
Ethylene glycol	[2] 20	EGL	
Ethylene glycol acetate	**34**	**EGO**	
Ethylene glycol tert-butyl ether	**40**		
Ethylene glycol diacetate	34	EGY	
Ethylene glycol dibutyl ether	**40**	**EGB**	
Ethylene glycol ethyl ether acetate	34	EGA	
Ethylene glycol methyl ether acetate	**34**	**EGT**	
Ethylene glycol butyl ether	40	EGM	
Ethylene glycol butyl ether acetate	34	EMA	
Ethylene glycol ethyl ether	40	EGE	
Ethylene glycol isopropyl ether	40	**EGI**	
Ethylene glycol methyl ether	40	EME	
Ethylene glycol phenyl ether	40	**EPE**	
Ethylene glycol phenyl ether, Diethylene glycol phenyl ether mixture	**40**	**EDX**	
Ethylene glycol propyl ether	**40**	**EGP**	
Ethylene oxide	[1] 0	EOX	
Ethylene oxide, Propylene oxide mixture	16	EPM	
Ethylene-Vinyl acetate copolymer emulsion	43		
Ethyl ether	41	EET	
Ethyl-3-ethoxypropionate	34	**EEP**	
Ethylhexaldehyde	19	EHA	
2-Ethylhexanol	20	EHX	
2-Ethylhexanoic acid	4	**EHO**	
2-Ethylhexyl acrylate	14	EAI	
2-Ethyl hexylamine	7	EHM	
Ethyl hexyl phthalate	34	EHE	
Ethyl hexyl tallate	34	EHT	
Ethylidene norbornene	[2] 30	ENB	
Ethyl methacrylate	14	ETM	
2-Ethyl-6-methyl-N-(1'-methyl-2-methoxyethyl)aniline	9	EEM	
o-Ethyl phenol	21	EPL	
Ethyl propionate	34	EPR	
2-Ethyl-3-propylacrolein	[2] 19	EPA	
Ethyl toluene	32	ETE	
Fatty acids (saturated, C13 and above)	**4**		
Fatty acid amides	33		
Fatty alcohols	20	FAT	
Ferric chloride solution	**1**	**FCS**	
Ferric hydroxyethylethylenediamine triacetic acid, trisodium salt solution	**[2] 43**	**FHX**	
Ferric nitrate, Nitric acid solution	**3**	**FNN**	
Fish solubles (*water based fish meal extracts*)	**43**	**FSO**	
Formaldehyde, Methanol mixtures	[2] 19	MTM	
Formaldehyde solution	[2] 19	FMS	
Formamide	10	FAM	

TABLE I - ALPHABETICAL LIST OF CARGOES—Continued

[Entries in **boldface** are new additions or changes]

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Formic acid	[2] 4	FMA	
Fructose solution	**43**		
Fumaric adduct of Rosin, water dispersion	43	FAR	
Furfural	19	FFA	
Furfuryl alcohol	[2] 20	FAL	
Gas oil, cracked	33	GOC	
Gasoline blending stock, alkylates	33	GAK	
Gasoline blending stock, reformates	33	GRF	
Gasolines:			
Automotive (*not over 4.23 grams lead per gal.*)	33	GAT	
Aviation (*not over 4.86 grams lead per gal*)	33	GAV	**AVA**
Casinghead (*natural*)	33	GCS	
Polymer	33	GPL	
Straight run	33	GSR	
Glutaraldehyde solution	19	GTA	
Glycerine	[2] 20	GCR	
Glycerol polyalkoxylate	**34**		
Glyceryl triacetate	34		
Glycidyl ester of tridecylacetic acid	**34**	**GLT**	
Glycidyl ester of Versatic acid	34		**GLT**
Glycol diacetate	34		
Glycols, Resins, and Solvents mixture	33		
Glyoxal solutions	19	GOS	
Heptane	31	HPT	
n-Heptanoic acid	4	HEP	
Heptanol	20	HTX	HTN
1-Heptene	30	HPX	HTE
Heptyl acetate	34	HPE	
Herbicide (C15-H22-NO2-Cl)	33	**MCO**	
Hexamethylenediamine solution	7	HMC	HMD
Hexamethylenetetramine	7	HMT	
Hexamethylenetetramine solutions	**7**	**HTS**	
Hexamethylenimine	7	HMI	
Hexane	[2] 31	**HXS**	**HXA/IHA**
Hexanoic acid	**4**	**HXO**	
Hexanol	20	HXN	
Hexene	30	**HXE**	**HEX**
Hexyl acetate	34	HAE	
Hexylene glycol	20	HXG	
Hydrochloric acid	1	HCL	
Hydrochloric acid, spent	1	HCS	
Hydrofluoric acid	1	HFA	
Hydrofluorosilicic acid	1	HFS	
Hydrogen peroxide solutions	[1] 0		HPN/HPS/HPO
2-Hydroxyethyl acrylate	[1,2] 0	HAI	
N-(Hydroxyethyl)ethylene diamine triacetic acid, trisodium salt solution	**43**	**HET**	
2-Hydroxy-4-(methylthio)butanoic acid	**4**	**HBA**	
Isophorone	[2] 18	IPH	
Isophorone diamine	7	IPI	
Isophorone diisocyanate	12	IPD	
Isoprene	30	IPR	
Isopropylbenzene	32	CUM	
Jet fuels:			
JP-1	33	JPO	
JP-3	33	JPT	
JP-4	33	JPF	
JP-5	33	JPV	
JP-8	**33**	**JPE**	
Kaolin clay slurry	43		
Kerosene	33	KRS	
Ketone residue	18		
Kraft black liquor	5		
Kraft pulping liquors (Black, Green, or White)	**5**	**KPL**	
Lactonitrile solution	37	LNI	
Latex, liquid synthetic	43	LLS	
Lauric acid	**4**	**LRA**	
Lignin liquor	43		
Magnesium chloride solution	[1,2] 0		
Magnesium nonyl phenol sulfide	33		

TABLE I - ALPHABETICAL LIST OF CARGOES—Continued

[Entries in **boldface** are new additions or changes]

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Magnesium sulfonate	34	MSE	
Maleic anhydride	11	MLA	
Maleic anhydride copolymer	33		
Mercaptobenzothiazol, sodium salt solution	5	SMB	
Mesityl oxide	[2] 18	MSO	
Metam sodium solution	**7**	**MSS**	**SMD**
Methacrylic acid	4	MAD	
Methacrylonitrile	15	MET	
Methane	31	MTH	
3-Methoxy-1-butanol	**20**		
3-Methoxybutyl acetate	**34**	**MOA**	
1-Methoxy-2-propyl acetate	**34**	**MPO**	
Methoxy triglycol	40	MTG	
Methyl acetate	34	MTT	
Methyl acetoacetate	34	MAE	
Methyl acetylene, Propadiene mixture	30	MAP	
Methyl acrylate	14	MAM	
Methyl alcohol	[2] 20	MAL	
Methylamine	7	MTA	
Methylamine solutions	7	MSZ	
Methyl amyl acetate	34	MAC	
Methyl amyl alcohol	20	MAA	
Methyl amyl ketone	18	MAK	
Methyl bromide	36	MTB	
Methyl butenol	**20**	**MBL**	
Methyl butyl ketone	18	MBK	
Methyl tert-butyl ether	[2] 41	MBF	
Methylbutynol	**20**	**MBY**	
3-Methyl butyraldehyde	19		
Methyl butyrate	34	MBU	
Methyl chloride	36	MTC	
Methylcyclohexane	**31**	**MCY**	
Methylcyclopentadiene dimer	**30**	**MCK**	
Methyl diethanolamine	8	MDE	
4,4'-Methylene dianiline (43% or less), Polymethylene polyphenylamine, o-Dichlorobenzene mixtures	9	MDB	
2-Methyl-6-ethyl aniline	5	MEN	
Methyl ethyl ketone	[2] 18	MEK	
2-Methyl-5-ethyl pyridine	9	MEP	
Methyl formal	41	MTF	
Methyl formate	34	MFM	
Methyl heptyl ketone	18	MHK	
2-Methyl-2-hydroxy-3-butyne	20	MHB	
Methyl isoamyl ketone	18		MAK
Methyl isobutyl carbinol	20	MIC	
Methyl isobutyl ketone	[2] 18	MIK	
Methyl methacrylate	14	MMM	
3-Methyl-3-methoxybutanol	**20**		
3-Methyl-3-methoxybutyl acetate	**34**		
Methyl naphthalene	32	MNA	
Methylolureas	19	MUS	
2-Methyl pentane	**31**		**IHA**
2-Methyl-1-pentene	30	MPN	
4-Methyl-1-pentene	**30**	**MTN**	
Methylpyridine	9		MPE/MPF/MPR
N-Methyl-2-pyrrolidone	9	MPY	
Methyl salicylate	34	MES	
alpha-Methyl styrene	30	MSR	
Metolachlor	**34**	**MCO**	
Mineral spirits	33	MNS	
Molasses	20		
Molasses residue	**0**		
Monochlorodifluoromethane	36	MCF	
Morpholine	[2] 7	MPL	
Motor fuel antiknock compounds containing lead alkyls	[1] 0	MFA	
Myrcene	**30**	**MRE**	
Naphtha:			
Coal tar **solvent**	33	NCT	
Cracking fraction	[2] 33		
Petroleum	33	PTN	

TABLE I - ALPHABETICAL LIST OF CARGOES—Continued

[Entries in **boldface** are new additions or changes]

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Solvent	33	NSV	
Stoddard solvent	33	NSS	
Varnish Makers' and Painters'	33	NVM	
Naphthalene	32	NTM	
Naphthalene sulfonic acid-formaldehyde copolymer, sodium salt solution	**0**	**NFS**	
Naphthalene sulfonic acid, sodium salt solution (40% or less)	**34**	**NSA**	
Naphthenic acid	4	NTI	
Naphthenic acid, sodium salt solution	**43**	**NTS**	
Neodecanoic acid	4	NEA	
Nitrating acid	[1] 0	NIA	
Nitric acid (70% or less)	3	NCD	
Nitric acid (greater than 70%)	[1] 0		NAC
Nitrobenzene	42	NTB	
o-Nitrochlorobenzene	42	CNO	CNP
Nitroethane	42	NTE	
o-Nitrophenol	[1,2] 0	NTP	NIP/NPH
Nitropropane	42	NPM	NPN/NPP
Nitropropane, Nitroethane mixture	42	NNM	
Nitrotoluene	42	NIT	NIE/NTT/NTR
Nonane	31	NAN	
Nonanoic acid	**4**		**NNA/NAI**
Nonene	30	NON	NNE
Nonyl alcohol	[2] 20	**NNS**	**NNN**
Nonyl methacrylate	**14**	**NMA**	
Nonyl phenol	21	NNP	
Nonyl phenol (ethoxylated)	40		**NPE**
Nonyl phenol poly(4-12)ethoxylates	**40**	**NPE**	
Nonyl phenol sulfide solution	33		NPS
Noxious Liquid Substance, n.o.s. (NLS's)	**0**		
1-Octadecene	30		
Octadecenoamide	10	**ODD**	
Octane	31	OAN	IOO
Octanoic acid	**4**	**OAA**	
Octene	30	OTX	OTE
Octyl alcohol (Octanol)	[2] 20	OCX	IOA/OTA
Octyl aldehyde	19	**OAL**	IOC
Octyl decyl adipate	**34**	**ODA**	
Octyl epoxytallate	34	OET	
Octyl nitrate	[2] 34	ONE	
Octyl phenol	21		
Oil, edible:			
Babassu	34	**OBB**	
Castor	34	OCA	
Coconut	[2] 34	OCC	
Corn	34	**OCO**	
Cotton seed	34	OCS	
Fish	[2] 34	OFS	
Lard	34	OLD	
Olive	34	OOL	
Palm	[2] 34	OPM	
Palm nut	**34**	**OPO**	
Peanut	34	OPN	
Rapeseed	34	**ORP**	
Rice bran	34	**ORB**	
Safflower	34	OSF	
Soya bean	34	OSB	
Sunflower	**34**	**OSN**	
Sunflower seed	34		
Tucum	34	OTC	
Vegetable	34	OVG	
Oil, fuel:			
No. 1	33	OON	
No. 1-D	33	OOD	
No. 2	33	OTW	
No. 2-D	33	OTD	
No. 4	33	OFR	
No. 5	33	OFV	
No. 6	33	OSX	

TABLE I - ALPHABETICAL LIST OF CARGOES—Continued

[Entries in **boldface** are new additions or changes]

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Oil, misc:			
Absorption	33	OAS	
Aliphatic	33		
Aromatic	33		
Clarified	33	OCF	
Coal	33		
Coconut, methyl ester	34		
Coconut, fatty acid methyl ester	34	OCM	
Cotton seed, fatty acid	34	CFY	
Crude	33	OIL	
Diesel	33	ODS	
Heartcut distillate	33		
Linseed	33	OLS	
Lubricating	33	OLB	
Mineral	33	OMN	
Mineral seal	33	OMS	
Motor	33	OMT	
Neatsfoot	33	ONF	
Oiticica	34	OOI	
Palm, fatty acid	4		
Palm, fatty acid methyl ester	34	OFM	
Palm, methyl ester	34	OPE	
Penetrating	33	OPT	
Pine	33	OPI	
Range	33	ORG	
Residual	33		
Resin	33	ORS	
Resinous petroleum	33		
Road	33	ORD	
Rosin	33	ORN	
Seal	34		
Soapstock	34		
Soybean (epoxidized)	40		EVO
Sperm	33	OSP	
Spindle	33	OSD	
Spray	33	OSY	
Tall	34	OTL	
Tall, fatty acid	[2] 34	TOF	
Tanner's	33	OTN	
Transformer	33	OTF	
Tung	34	OTG	
Turbine	33	OTB	
White (mineral)	33		
Oleic acid	4	OLA	
Olefin mixtures	30		OFX/OFY
alpha-Olefins (C13 and above)	30	OAM	
Oleum	[1,2] 0	OLM	
Oxyalkylated alkyl phenol formaldehyde	33		
Palm nut oil, fatty acid	4	PNO	
Palm nut oil, fatty acid methyl ester	34	PNF	
Palm stearin	34	PMS	
n-Paraffins (C10 - C20)	31	PFN	DCC/DOC/TRD
Paraldehyde	19	PDH	
Pentachloroethane	35	PCE	
Pentadecanol	20	PDC	
1,3-Pentadiene	30	PDE	PDN
Pentaethylenehexamine, Tetraethylenepentamine mixture	7	PEP	
Pentane	31	PTY	IPT/PTA
Pentene	30	PTX	PTE
Pentene, Miscellaneous hydrocarbon mixture	[2] 30		
3-Pentenenitrile	37	PNT	
Pentyl aldehyde	19		
Perchloroethylene	36	PER	
Petrolatum	33	PTL	
Phenol	21	PHN	
1-Phenyl-1-xylyl ethane	32	PXE	
Phosphoric acid	1	PAC	
Phosphorus	[1] 0		PPW/PPR/PPB
Phthalic anhydride	11	PAN	

TABLE I - ALPHABETICAL LIST OF CARGOES—Continued

[Entries in **boldface** are new additions or changes]

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Pinene	30	PIN	
Pine oil	33	OPI	
Polyalkenyl succinic anhydride amine	33		
Polyalkylene glycols, Polyalkylene glycol monoalkyl ethers mixtures	**40**	**PPX**	
Polyalkyl(C18 - C22) acrylate in Xylene	**14**	**PIX**	
Polyalkylene oxide polyol	**20**	**PAO**	
Polybutadiene, hydroxyl terminated	20		
Polybutene	30	PLB	
Polydimethylsiloxane	34		
Polyethylene glycol dimethyl ether	**40**		
Polyethylene glycol monoalkyl ether	**40**	**PEE**	
Polyethylene glycols	40		
Polyethylene polyamines	[2] 7	PEB	
Polyferric sulfate solution	**34**	**PSS**	
Polyglycerol	**20**		**GCR**
Polymethylene polyphenyl isocyanate	12	PPI	
Polymethylsiloxane	34		
Poly(20)oxyethylene sorbitan monooleate	**34**	**PSM**	
Polypropylene	30	PLP	
Polypropylene glycol	40	PGC	
Polypropylene glycol methyl ether	40	PGM	
Polysiloxane	**34**		
Potassium hydroxide solution	[2] 5	CPS	
Potassium oleate	**34**	**POE**	
Propane	31	PRP	
Propanolamine	8		MPA/PLA/PRA
Propionaldehyde	19	PAD	
Propionic acid	4	PNA	
Propionic anhydride	11	PAH	
Propionitrile	37	PCN	
n-Propoxypropanol	**40**	**PXP**	
Propyl acetate	34		IAC/PAT
Propyl alcohol	[2] 20		IPA/PAL
Propylamine	7		IPO/IPP/PRA
Propylbenzene	**32**	**PBZ**	
Iso-Propylcyclohexane	**31**	**IPX**	
Propylene	30	PPL	
Propylene butylene polymer	30	PBP	
Propylene dimer	30	PDR	
Propylene glycol	[2] 20	PPG	
Propylene glycol monoalkyl ether	**40**	**PGE**	**PME/PGY**
Propylene glycol ethyl ether	**40**	**PGY**	**PGE**
Propylene glycol methyl ether	**40**	**PME**	**PGE**
Propylene oxide	16	POX	
Propylene tetramer	30	PTT	
Propylene trimer	30	PTR	
Propyl ether	41		IPE
Pseudocumene	32		TME
Pyridine	9	PRD	
Pyridine bases	9	PRB	
Rosin soap (disproportionated) solution	43	RSP	
Rum	20		
Salicylaldehyde	19	SAL	
Sewage sludge	43		
Sodium acetate solution	**34**	**SAN**	
Sodium alkyl sulfonate solution	43	SSU	
Sodium aluminate solution	**5**	**SAU**	
Sodium benzoate solution	**34**	**SBN**	
Sodium borohydride, Sodium hydroxide solution	5	SBX	SBH/SBI
Sodium carbonate solutions	5	**SCE**	
Sodium chlorate solution	[1,2] 0	SDD	SDC
Sodium cyanide solution	5	SCS	SCN
Sodium dichromate solution	[1,2] 0	SDL	SCR
Sodium dimethyl naphthalene sulfonate solution	[2] 34	**DNS**	
Sodium hydrogen sulfide, Sodium carbonate solution	[2] 0	**SSS**	
Sodium hydrogen sulfite solution	43	SHX	
Sodium hydrosulfide solution	[2] 5	SHR	
Sodium hydrosulfide, Ammonium sulfide solution	[2] 5	SSA	
Sodium hydroxide solution	[2] 5	CSS	

TABLE I - ALPHABETICAL LIST OF CARGOES—Continued

[Entries in **boldface** are new additions or changes]

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Sodium hypochlorite solution	5	SHP	SHC
Sodium 2-mercaptobenzothiazol solution	5	SMB	
Sodium naphthalene sulfonate solution	34	SNS	
Sodium nitrite solution	5	SNI	
Sodium polyacrylate solution	[2]43		
Sodium salt of Ferric hydroxyethylethylenediamine triacetic acid solution	43	STA	FHX
Sodium silicate solution	[2]43	SSC	
Sodium sulfide, Hydrosulfide solution	[1,2]0		SSH/SSI/SSJ
Sodium thiocyanate solution	[1,3]0	STS	SCY
Sorbitol solutions	20		SBT
Stearic acid	4	SRA	
Styrene	30	STY	
Sulfolane	39	SFL	
Sulfur	[1]0	SXX	
Sulfuric acid	[2]2	SFA	
Sulfuric acid, spent	2	SAC	
Tall oil	34	OTL	
Tall oil soap (disproportionated) solution	43	TOS	
Tallow	[2]34	TLO	
Tallow fatty acid	[2]34	TFD	
Tallow fatty alcohol	20	TFA	
Tallow nitrile	37		
1,1,2,2-Tetrachloroethane	36	TEC	
Tetradecanol	20	TTN	
Tetradecene	30	TTD	
Tetradecylbenzene	32	TDB	AKB
Tetraethylene glycol	40	TTG	
Tetraethylenepentamine	7	TTP	
Tetrahydrofuran	41	THF	
Tetrahydronaphthalene	32	THN	
1,2,3,5-Tetramethylbenzene	32	TTB	
Tetrasodium salt of EDTA solution	43	EDS	
Titanium tetrachloride	2	TTT	
Toluene	32	TOL	
Toluenediamine	8	TDA	
Toluene diisocyanate	12	TDI	
o-Toluidine	9	TLI	
Triarylphosphate	34		
Tributyl phosphate	34	TBP	
1,2,4-Trichlorobenzene	36	TCB	
1,1,1-Trichloroethane	[2]36	TCE	
1,1,2-Trichloroethane	36	TCM	
Trichloroethylene	[2]36	TCL	
1,2,3-Trichloropropane	36	TCN	
1,1,2-Trichloro-1,2,2-trifluoroethane	36	TTF	
Tricresyl phosphate	34		TCO/TCP
Tridecane	34	TRD	PFN
Tridecanol	20	TDN	
Tridecene	30	TDC	
Tridecylbenzene	32	TRB	AKB
Triethanolamine	[2]8	TEA	
Triethylamine	7	TEN	
Triethyl benzene	32	TEB	
Triethylene glycol	40	TEG	
Triethylene glycol butyl ether	40		
Triethylene glycol butyl ether mixture	40		
Triethylene glycol di-(2-ethylbutyrate)	34	TGD	
Triethylene glycol ether mixture	40		
Triethylene glycol ethyl ether	40	TGE	
Triethylenetetramine	[2]7	TET	
Triethyl phosphate	34	TPS	
Triethyl phosphite	[2]34	TPI	
Triisobutylene	30	TIB	
Triisooctyl trimellitate	34		
Triisopropanolamine	8	TIP	
Triisopropanolamine salt of 2,4-Dichlorophenoxyacetic acid solution	43	DTI	
Trimethylacetic acid	4	TAA	
Trimethyl benzene	32	TME	TMB/TMD
Trimethylhexamethylene diamine (2,2,4- and 2,4,4-)	7	THA	

TABLE I - ALPHABETICAL LIST OF CARGOES—Continued

[Entries in **boldface** are new additions or changes]

Chemical name	Group No.	CHRIS code	Related CHRIS codes
Trimethylhexamethylene diisocyanate (2,2,4- and 2,4,4-)	12	THI	
Trimethylol propane polyethoxylate	20	TRP	
2,2,4-Trimethyl pentanediol-1,3-diisobutyrate	34		
2,2,4-Trimethyl-1,3-pentanediol-1-isobutyrate	34	TMP	
2,2,4-Trimethyl-3-pentanol-1-isobutyrate	34		
Trimethyl phosphite	[2] 34	TPP	
Tripropylene	30		
Tripropylene glycol	40	TGC	
Tripropylene glycol methyl ether	40	TGM	
Trisodium nitrilotriacetate	34		
Trixylenyl phosphate	34	TRP	
Turpentine	30	TPT	
Undecanoic acid	4	UDA	
Undecanol	20	UND	
Undecene	30	UDC	
Undecyl alcohol	20	UND	
Undecylbenzene	32	UDB	AKB
Urea, Ammonium mono- and di-hydrogen phosphate, Potassium chloride solution	0	UPX	
Urea, Ammonium nitrate solution (containing Ammonia)	6	UAS	
Urea, Ammonium nitrate solution (not containing Ammonia)	43	ANU	
Urea, Ammonium phosphate solution	43	UAP	
Valeraldehyde	19		IVA/VAL/VAK
Vanillin black liquor	5	VBL	
Vegetable protein solution	43		
Vinyl acetate	13	VAM	
Vinyl acetate-Fumarate copolymer	34		
Vinyl chloride	35	VCM	
Vinyl ethyl ether	13	VEE	
Vinylidene chloride	35	VCI	
Vinyl neodecanate	13	VND	
Vinyl toluene	13	VNT	
Waxes:			
Carnauba	34	WCA	
Paraffin	31	WPF	
White spirit (low (15-20%) aromatic)	33	WSL	WSP
Xylene	32	XLX	XLM/XLO/XLP
Xylenols	21	XYL	
Zinc bromide, Calcium bromide solution *see* Drilling brine (containing Zinc salts)	43	DZB	

[1] Because of very high reactivity or unusual conditions of carriage or potential compatibility problems, this product is not assigned to a specific group in the Compatibility Chart. For additional compatibility information, contact Commandant (G-MTH), U.S. Coast Guard, 2100 Second Street, SW., Washington, D.C. 20593-0001. Telephone (202) 267-1577.

[2] See Appendix I - Exceptions to the Chart.

Table II - Grouping of Cargoes

([•] New addition to 46 CFR Part 150)

0. Unassigned Cargoes

Acetone cyanohydrin [1,2]
Alkyl benzene sulfonic acid [1,2]
•Aluminium chloride, Hydrochloric acid solution [1]
•Ammonium hydrogen phosphate solution [1]
Ammonium nitrate solution [1]
•Ammonium thiocyanate, Ammonium thiosulfate solution [1]
Benzenesulfonyl chloride [1,2]
gamma-Butyrolactone [1,2]
Chlorine [1]
Chlorosulfonic acid [1]
2,4-Dichlorophenoxyacetic acid, Dimethylamine salt solution [1,2]
Dimethylamine salt of 2,4-Dichlorophenoxyacetic acid solution [1,2]
Diphenylol propane-Epichlorohydrin resins [1]
•Dodecylbenzenesulfonic acid [1,2]
•Ethyl chlorothioformate [1,2]
Ethylene oxide [1]
2-Hydroxyethyl acrylate [1,2]
Magnesium chloride solution [1,2]
•Molasses residue [1]
Motor fuel antiknock compounds containing Lead alkyls [1]
•Naphthalene sulfonic acid-formaldehyde copolymer, sodium salt solution [1]
Nitrating acid [1]
Nitric acid (greater than 70%) [1]
o-Nitrophenol [1,2]
•Noxious Liquid Substance, n.o.s. (NLS's) [1]
Oleum [1,2]
Phosphorus [1]
Sodium chlorate solution [1,2]
Sodium dichromate solution [1,2]
•Sodium hydrogen sulfide, Sodium carbonate solution [1,2]
Sodium sulfide, Hydrosulfide solution [1,2]
Sodium thiocyanate solution [1,2]
Sulfur [1]
•Urea, Ammonium mono- and di-hydrogen phosphate, Potassium chloride solution

1. Non-Oxidizing Mineral Acids

Di-(2-ethylhexyl)phosphoric acid
•Ferric chloride solution
Hydrochloric acid
Hydrochloric acid, spent
Hydrofluoric acid
Hydrofluorosilicic acid
Phosphoric acid

2. Sulfuric Acids

Sulfuric acid [2]
Sulfuric acid, spent
Titanium tetrachloride

3. Nitric Acid

•Ferric nitrate, Nitric acid solution
Nitric acid (70% or less)

4. Organic Acids

Acetic acid [2]
Acrylic acid [2]
Butyric acid
Cashew nut shell oil (untreated)
Chloroacetic acid solution
Chloropropionic acid

Cyclohexane oxidation product acid water
•Decanoic acid
2,2-Dichloropropionic acid
2,2-Dimethyloctanoic acid
2-Ethylhexanoic acid
•Fatty acids (saturated, C13 and above)
Formic acid [2]
n-Heptanoic acid
•Hexanoic acid
•2-Hydroxy-4-(methylthio)butanoic acid
•Lauric acid
Methacrylic acid
Naphthenic acid
Neodecanoic acid
Nonanoic acid
•Nonanoic acid
•Octanoic acid
Oils:
Oil, misc:
•Palm, fatty acid
Oleic acid
•Palm nut oil, fatty acid
Propionic acid
Stearic acid
Trimethylacetic acid
•Undecanoic acid

5. Caustics

Ammonium sulfide solution
Calcium hypochlorite solution
•Calcium hypochlorite solutions
Caustic potash solution [2]
Caustic soda solution [2]
Cresylate spent caustic
•Cresylic acid, sodium salt solution
Kraft black liquor
•Kraft pulping liquors
Mercaptobenzothiazol, sodium salt solution
Potassium hydroxide solution [2]
•Sodium aluminate solution
Sodium borohydride, Sodium hydroxide solution
Sodium carbonate solutions
Sodium cyanide solution
Sodium hydrosulfide solution [2]
Sodium hydrosulfide, Ammonium sulfide solution [2]
Sodium hydroxide solution [2]
Sodium hypochlorite solution
Sodium 2-mercaptobenzothiazol solution
•Sodium nitrite solution
Vanillin black liquor

6. Ammonia

Ammonia, anhydrous
Ammonium hydroxide (28% or less Ammonia)
Ammonium nitrate, Urea solution (containing Ammonia)
Urea, Ammonium nitrate solution (containing Ammonia)

7. Aliphatic Amines

N-Aminoethylpiperazine
Butylamine
Cyclohexylamine
Dibutylamine
Diethylamine [2]
Diethylenetriamine
Diisobutylamine
Diisopropylamine
Dimethylamine
Dimethylamine solution
N,N-Dimethylcyclohexylamine
Di-n-propylamine
Dodecylamine, Tetradecylamine mixture [2]
Ethylamine [2]
Ethylamine solution
N-Ethyl-n-butylamine
N-Ethyl cyclohexylamine
Ethylenediamine [2]
2-Ethyl hexylamine
Hexamethylenediamine solution
Hexamethylenetetramine
•Hexamethylenetetramine solutions
Hexamethylenimine
Isophorone diamine
•Metam sodium solution
Methylamine
Methylamine solutions
Morpholine [2]
Pentaethylenehexamine, Tetraethylenepentamine mixture
Polyethylene polyamines [2]
Propylamine
Tetraethylenepentamine
Triethylamine
Triethylenetetramine [2]
Trimethylhexamethylene diamine (2,2,4- and 2,4,4-)

8. Alkanolamines

2-(2-Aminoethoxy)ethanol
•Aminoethyldiethanolamine, Aminoethylethanolamine solution
Aminoethylethanolamine
2-Amino-2-methyl-1-propanol
Diethanolamine
Diethylaminoethanol
Diethylethanolamine
Diisopropanolamine
Dimethylethanolamine
Ethanolamine
Propanolamine
Triethanolamine [2]
Triisopropanolamine

9. Aromatic Amines

Aniline
4-Chloro-2-methylphenoxyacetic acid, Dimethylamine salt solution
•2,6-Diethylaniline
Dimethylamine salt of 4-Chloro-2-methylphenoxyacetic acid solution
•2,6-Dimethylaniline
2-Ethyl-6-methyl-N-(1'-methyl-2-methoxyethyl)aniline
4,4'-Methylene dianiline (43% or less), Polymethylene polyphenylamine, o-Dichlorobenzene mixtures
2-Methyl-6-ethyl aniline
2-Methyl-5-ethyl pyridine
Methyl pyridine
•3-Methylpyridine
N-Methyl pyrrolidone
Pyridine
Pyridine bases
Toluenediamine
p-Toluidine

10. Amides

Acrylamide solution
N,N-Dimethylacetamide
•N,N-Dimethylacetamide solution
Dimethylformamide
Formamide
Octadecenoamide

11. Organic Anhydrides

Acetic anhydride
Maleic anhydride
Phthalic anhydride
Propionic anhydride

12. Isocyanates

Diphenylmethane diisocyanate
Isophorone diisocyanate
Polymethylene polyphenyl isocyanate
Toluene diisocyanate
Trimethylhexamethylene diisocyanate (2,2,4- and 2,4,4-)

13. Vinyl Acetate

Vinyl acetate
Vinyl ethyl ether
Vinyl neodecanate
Vinyl toluene

14. Acrylates

Butyl acrylate
Butyl methacrylate
Butyl methacrylate, Decyl methacrylate, Cetyl-Eicosyl methacrylate mixture
Cetyl-Eicosyl methacrylate
Decyl acrylate
Dodecyl methacrylate
Dodecyl-Pentadecyl methacrylate
Ethyl acrylate
2-Ethylhexyl acrylate
Ethyl methacrylate
Methyl acrylate
Methyl methacrylate
•Nonyl methacrylate
•Polyalkyl(C18 - C22) acrylate in Xylene

15. Substituted Allyls

Acrylonitrile [2]
Allyl alcohol [2]
Allyl chloride
1,3-Dichloropropene
Dichloropropene, Dichloropropane mixtures
Methacrylonitrile

16. Alkylene Oxides

Butylene oxide
Ethylene oxide, Propylene oxide mixtures
Propylene oxide

17. Epichlorohydrin

Chlorohydrins
Epichlorohydrin

18. Ketones

Acetone [2]
Acetophenone
Amyl methyl ketone
Butyl heptyl ketone
Camphor oil
Cyclohexanone
Cyclohexanone, Cyclohexanol mixtures [2]
Diisobutyl ketone
•Ethyl amyl ketone
Epoxy resin
Ketone residue
Isophorone [2]
Mesityl oxide [2]
Methyl amyl ketone
Methyl butyl ketone
•Methyl butyl ketone
Methyl diethanolamine
Methyl ethyl ketone [2]
Methyl heptyl ketone
Methyl isoamyl ketone
Methyl isobutyl ketone [2]

19. Aldehydes

Acetaldehyde
Acrolein [2]
Butyraldehyde

Crotonaldehyde [2]
Decaldehyde
Ethylhexaldehyde
2-Ethyl-3-propylacrolein [2]
Formaldehyde, Methanol mixtures [2]
Formaldehyde solution [2]
Furfural
Glutaraldehyde solution
Glyoxal solutions
3-Methyl butyraldehyde
Methylolureas
Octyl aldehyde
Paraldehyde
Pentyl aldehyde
Propionaldehyde
Salicylaldehyde
Valeraldehyde

20. Alcohols, Glycols

•Acrylonitrile-Styrene copolymer dispersion in Polyether polyol
•Alcoholic beverages
•Alcohol polyethoxylates
•Alcohol polyethoxylates, secondary
•Alcohols (C13 and above)
Amyl alcohol
Behenyl alcohol
•Brake fluid base mixtures
Butyl alcohol [2]
Butylene glycol [2]
Choline chloride solutions
Cyclohexanol
Decyl alcohol [2]
Diacetone alcohol [2]
Diisobutyl carbinol
2,2-Dimethylpropane-1,3-diol
Dodecanol
Dodecyl alcohol
Ethoxylated alcohols, C11-C15
•2-Ethoxyethanol
Ethyl alcohol [2]
Ethyl butanol
Ethylene chlorohydrin
Ethylene cyanohydrin
Ethylene glycol [2]
2-Ethylhexanol
Fatty alcohols
Furfuryl alcohol [2]
Glycerine [2]
Heptanol
Hexanol
Hexylene glycol
•3-Methoxy-1-butanol
Methyl alcohol [2]
Methyl amyl alcohol
•Methyl butenol
•Methylbutynol
2-Methyl-2-hydroxy-3-butyne
Methyl isobutyl carbinol
•3-Methyl-3-methoxybutanol
Molasses
Nonyl alcohol [2]
Octyl alcohol [2]
Pentadecanol
•Polyalkylene oxide polyol
Polybutadiene, hydroxyl terminated
•Polyglycerol
Propyl alcohol [2]
Propylene glycol [2]
Rum
Sorbitol solutions
Tallow fatty alcohol
Tetradecanol
Tridecanol
•Trimethylol propane polyethoxylate
Undecanol
Undecyl alcohol

21. Phenols, Cresols

Benzyl alcohol
Carbolic oil
Creosote [2]
Cresols
Cresylic acid
2,4-Dichlorophenol
Dodecyl phenol
o-Ethylphenol
Nonyl phenol
Octyl phenol
Phenol
Xylenols

22. Caprolactam Solutions

Caprolactam solution

23-29. Unassigned

30. Olefins

Amylene
Butadiene
Butadiene, Butylene mixtures (cont. Acetylenes)
Butene
•Butene oligomer
Butylene
•1,5,9-Cyclododecatriene
•1,3-Cyclopentadiene dimer
Cyclopentadiene polymers
Cyclopentadiene, Styrene, Benzene mixture
•Cyclopentene
Decene
Dicyclopentadiene
Diisobutylene
Dipentene
Dodecene
Ethylene
Ethylidene norbornene [2]
1-Heptene
Hexene
Isoprene
Methyl acetylene, Propadiene mixture
•Methylcyclopentadiene dimer
2-Methyl-1-pentene
•4-Methyl-1-pentene
alpha-Methyl styrene
•Myrcene
Nonene
1-Octadecene
Octene
•Olefin mixtures
•alpha-Olefins (C13 and above)
1,3-Pentadiene
Pentene
Pentene, Miscellaneous hydrocarbon mixture [2]
Pinene
Polybutene
Polypropylene
Propylene
Propylene butylene copolymer
Propylene dimer
Propylene tetramer
Propylene trimer
Styrene
Tetradecene
Tridecene
Triisobutylene
Tripropylene
Turpentine
Undecene

31. Paraffins

Butane
Cycloaliphatic resins
•Cycloheptane
Cyclohexane
•Cyclopentane
Decane
Dodecane
Ethane
Heptane
Hexane [2]
Methane
•Methylcyclohexane
•2-Methyl pentane
Nonane
Octane
•n-Paraffins (C10 - C20)
Pentane
Propane
•iso-Propylcyclohexane
Waxes:
Paraffin

32. Aromatic Hydrocarbons

Alkyl acrylate-Vinyl pyridine copolymer in Toluene
•Alkyl(C9 - C17) benzenes
Benzene
Benzene hydrocarbon mixtures (having 10% Benzene or more)
Benzene, Toluene, Xylene mixtures
Butyl benzene
•Butyl phenol, Formaldehyde resin in Xylene
•Butyl toluene
Cumene
Cymene
Decyl benzene
•Dialkyl(C10 - C14) benzenes
Diethylbenzene
Diisopropyl benzene
Diisopropyl naphthalene
Diphenyl
Dodecylbenzene
Ethyl benzene
Ethyl toluene
Isopropylbenzene
Methyl naphthalene
Naphthalene
1-Phenyl-1-xylyl ethane
•Propylbenzene
Pseudocumene
Tetradecylbenzene
Tetrahydronaphthalene
•1,2,3,5-Tetramethylbenzene
Toluene
Tridecylbenzene
Triethyl benzene
Trimethyl benzene
Undecylbenzene
Xylene

33. Miscellaneous Hydrocarbon Mixtures

•Alkyl benzene sulfonic acid, sodium salt solutions
Asphalt blending stocks, roofers flux
Asphalt blending stocks, straight run residue
•Aviation alkylates
Calcuim sulfonate, Calcium carbonate, Hydrocarbon solvent mixture
Carbon black base
Coal tar
Coal tar pitch
•Decahydronaphthalene
Diphenyl, Diphenyl ether
Distillates, flashed feed stocks
Distillates, straight run

•Drilling mud (low toxicity) *(if flammable or combustible)*
Fatty acid amides
Gas oil, cracked
Gasoline blending stock, alkylates
Gasoline blending stock, reformates
Gasolines:
Automotive *(not over 4.23 grams lead per gal.)*
Aviation *(not over 4.86 grams lead per gal.)*
Casinghead *(natural)*
Polymer
Straight run
Glycols, Resins, and Solvents mixture
Herbicide (C15-H22-NO2-Cl)
Jet Fuels:
JP-1
JP-3
JP-4
JP-5
•JP-8
Kerosene
Magnesium nonyl phenol sulfide
Maleic anhydride copolymer
Mineral spirits
Naphtha:
Coal tar solvent
Cracking fraction [2]
Petroleum
Solvent
Stoddard solvent
Varnish Makers' and Painters'
Nonyl phenolsulfide solution
Oil, fuel:
No. 1
No. 1-D
No. 2
No. 2-D
No. 4
No. 5
No. 6
Oil, misc:
Absorption
Aliphatic
Aromatic
Clarified
Coal
Crude
Diesel
Heartcut distillate
Linseed
Lubricating
Mineral
Mineral seal
Motor
Neatsfoot
Penetrating
Pine
Range
Resin
Resinous petroleum
Rosin
Sperm
Spindle
Spray
Tanner's
Turbine
White (mineral)
Residual
Road
Transformer
Oxyalkylated alkyl phenol formaldehyde
Petrolatum
Pine oil
Polyalkenyl succinic anhydride amine
White spirit (low (15-20%) aromatic)

34. Esters

Acetyl tributyl citrate
Alkyl phthalates
Amyl acetate
Amyl tallate
•Benzene tricarboxylic acid trioctyl ester
•Benzyl acetate
Butyl acetate
Butyl benzyl phthalate
•n-Butyl butyrate
Butyl formate
iso-Butyl isobutyrate
Calcium naphthenate in Mineral oil
•Calcium nitrate, Magnesium nitrate, Potassium chloride solution
•Coconut oil, fatty acid
•Cottonseed oil, fatty acid
•Cyclohexyl acetate
•Dialkyl(C7 - C13) phthalates
Dibutyl phthalate
•Diethylene glycol ethyl ether acetate
•Diethylene glycol methyl ether acetate
Diethylene glycol butyl ether acetate
•Diethylene glycol phthalate
•Di-(2-ethylhexyl)adipate
Di-(2-ethylhexyl)phthalate
Diethyl phthalate
Diethyl sulfate
Diheptyl phthalate
Di-n-hexyl adipate
Diisobutyl phthalate
Diisodecyl phthalate
Diisononyl adipate
Diisononyl phthalate
Diisooctyl phthalate
Dimethyl adipate
Dimethylcyclicsiloxane hydrolyzate
Dimethyl glutarate
Dimethyl hydrogen phosphite [2]
•Dimethyl naphthalene sulfonic acid, sodium salt solution [2]
Dimethyl phthalate
Dimethyl polysiloxane
Dimethyl succinate
Dinonyl phthalate
Dioctyl phthalate
Dipropylene glycol dibenzoate
•Ditridecyl phthalate
•2-Dodecenylsuccinic acid, dipotassium salt solution
Diundecyl phthalate
2-Ethoxyethyl acetate
Ethyl acetate
Ethyl acetoacetate
Ethyl butyrate
•Ethylene glycol acetate
Ethylene glycol diacetate
•Ethylene glycol methyl ether acetate
Ethylene glycol butyl ether acetate
Ethylene glycol ethyl ether acetate
Ethyl-3-ethoxypropionate
Ethyl hexyl phthalate
Ethyl hexyl tallate
Ethyl propionate
•Ethyl propionate
•Glycerol polyalkoxylate
Glyceryl triacetate
•Gylcidyl ester of tridecylacetic acid
Glycidyl ester of Versatic acid
Glycol diacetate
Heptyl acetate
Hexyl acetate
Magnesium sulfonate
•3-Methoxybutyl acetate
•1-Methoxy-2-propyl acetate
Methyl acetate
Methyl acetoacetate
Methyl amyl acetate
Methyl butyrate
Methyl formate
•3-Methyl-3-methoxybutyl acetate
Methyl salicylate
•Metolachlor
•Naphthalene sulfonic acid, sodium salt solution (40% or less)
•Octyl decyl adipate
Octyl epoxytallate
Octyl nitrate [2]
Oil, edible:
Babassu
Castor
Coconut [2]
Corn
Cotton seed
Fish [2]
Lard
Olive
Palm [2]
•Palm nut
Peanut
Rapeseed
Rice bran
Safflower
Soya bean
•Sunflower
Sunflower seed
Tucum
Vegetable
Oil, misc:
Coconut, methyl ester
•Coconut oil, fatty acid methyl ester
Cotton seed, fatty acid
Cotton seed, fatty acid
•Palm oil, fatty acid methyl ester
•Palm oil, methyl ester
Soapstock
Tall
Tall, fatty acid [2]
Tung
•Palm nut oil, fatty acid methyl ester
•Palm stearin
Polydimethylsiloxane
•Polyferric sulfate solution
Polymethylsiloxane
•Poly(20)oxyethylene sorbitan monooleate
•Polysiloxane
•Potassium oleate
Propyl acetate
•Sodium acetate solution
•Sodium benzoate solution
Sodium dimethyl naphthalene sulfonate solution [2]
Sodium naphthalene sulfonate solution
Tall oil
Tallow [2]
Tallow fatty acid [2]
Triarylphosphate
Tributyl phosphate
Tricresyl phosphate
Tridecane
•Triethylene glycol di-(2-ethylbutyrate)
Triethyl phosphate
Triethyl phosphite [2]
Triisooctyl trimellitate [2]
2,2,4-Trimethyl pentanediol-1,3-diisobutyrate
2,2,4-Trimethyl-1,3-pentanediol-1-isobutyrate
2,2,4-Trimethyl-3-pentanol-1-isobutyrate

Trimethyl phosphite [2]
Trisodium nitrilotriacetate
Trixylenyl phosphate
Vinyl acetate-Fumarate copolymer
Waxes:
Carnauba

35. Vinyl Halides

Vinyl chloride
Vinylidene chloride

36. Halogenated Hydrocarbons

Benzyl chloride
Carbon tetrachloride
•Chlorinated paraffins (C10 - C13)
•Chlorinated paraffins (C14 - C17)
Chlorobenzene
Chlorodifluoromethane
Chloroform
Chlorotoluene
Dichlorobenzene
Dichlorodifluoromethane
1,1-Dichloroethane
2,2'-Dichloroisopropyl ether
Dichloromethane
Dichloropropane
Ethyl chloride
Ethylene dibromide
Ethylene dichloride [2]
Methyl bromide
Methly chloride
Monochlorodifluoromethane
Pentachloroethane
Perchloroethylene
1,1,2,2-Tetrachloroethane
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane [2]
1,1,2-Trichloroethane
Trichloroethylene [2]
1,2,3-Trichloropropane
1,1,2-Trichloro-1,2,2-trifluoroethane

37. Nitriles

Acetonitrile
Adiponitrile
Lactonitrile solution
3-Pentenenitrile
Propionitrile
Tallow nitrile

38. Carbon Disulfide

Carbon disulfide

39. Sulfolane

Sulfolane

40. Glycol Ethers

Diethylene glycol
•Diethylene glycol dibutyl ether
Diethylene glycol butly ether
Diethylene glycol ethyl ether
Diethylene glycol methly ether
Diethylene glycol phenyl ether
Dipropylene glycol
•Dipropylene glycol methyl ether
Ethoxy triglycol
•Ethylene glycol tert-butyl ether
•Ethylene glycol dibutyl ether
Ethylene glycol butyl ether
Ethylene glycol ethyl ether
Ethylene glycol isopropyl ether
Ethylene glycol methly ether
Ethylene glycol phenyl ether
•Ethylene glycol phenyl ether, Diethylene glycol phenyl ether mixture
•Ethylene glycol propyl ether
Methoxy triglycol
Nonyl phenol (ethoxylated)
•Nonyl phenol poly(4-12)ethoxylates
Oil, misc:
Soybean (epoxidized)
•Polyalkylene glycols, Polyalkylene glycol monoalkyl ethers mixtures
Polyethylene glycols
•Polyethylene glycol dimethyl ether
•Polyethylene glycol monoalkyl ether
Polypropylene glycol methyl ether
Polypropylene glycols
•n-Propoxypropanol
•Propylene glycol monoalkyl ether
•Propylene glycol ethyl ether
•Propylene glycol methyl ether
Tetraethylene glycol
Triethylene glycol
•Triethylene glycol butyl ether
Triethylene glycol butyl ether mixture
Triethylene glycol ether mixture
•Triethylene glycol ethyl ether
Tripropylene glycol
Tripropylene glycol methyl ether

41. Ethers

Butyl ether
2,2'-Dichloroethyl ether
Digylcidyl ether of Bisphenol A
•Diglycidyl ether of Bisphenol F
Dimethyl furan
1,4-Dioxane
Diphenyl ether
Diphenyl ether, Diphenyl phenyl ether mixture
Ethyl ether
Methyl-tert-butyl ether [2]
Methyl formal
Propyl ether
Tetrahydrofuran

42. Nitrocompounds

Dinitrotoluene
Nitrobenzene
o-Nitrochlorobenzene
Nitroethane
Nitropropane
Nitropropane, Nitroethane mixture
Nitrotoluene

43. Miscellaneous Water Solutions

Aluminum sulfate solution [2]
2-Amino-2-hydroxymethyl-1,3-propanediol solution
Ammonium bisulfite solution [2]
Ammonium nitrate, Urea solution (not containing Ammonia)
Ammonium polyphosphate solution
Ammonium sulfate solution
Ammonium thiosulfate solution
Calcium bromide solution
Calcium chloride solution
Corn syrup
Dextrose solution
Diammonium salt of Zinc EDTA solution
2,4-Dichlorophenoxy acetic acid, Diethanolamine salt solution
2,4-Dichlorophenoxyacetic acid, Triisopropanolamine salt solution [2]
•Didecyl dimethyl ammonium chloride, Ethanol mixture solution
Diethanolamine salt of 2,4-Dichlorophenoxy acetic acid solution
Dodecyl diphenyl ether disulfonate solution
•Drilling brine (containing Calcium or Sodium salts)
•Drilling brine (containing Zinc salts)
•Drilling mud (low toxicity) *(if non-flammable or non-combustible)*
•Ethylene diamine tetracetic acid, tetrasodium salt solution
Ethylene-Vinyl acetate copolymer emulsion
•Ferric hydroxyethylethylenediamine triacetic acid, trisodium salt solution [2]
•Fish solubles *(water based fish meal extracts)*
•Fructose solution
Fumaric adduct of Rosin, water dispersion
•N-(Hydroxyethyl)ethylene diamine triacetic acid, trisodium salt solution
Kaolin clay slurry
Latex, liquid synthetic
Lignin liquor
•Naphthenic acid, sodium salt solution
Rosin soap (disproportionated) solution
Sewage sludge
Sodium alkyl sulfonate solution
Sodium hydrogen sulfite solution
Sodium polyacrylate solution [2]
Sodium salt of Ferric hydroxyethylethylenediamine triacetic acid solution
Sodium silicate solution [2]
Tall oil soap (disproportionated) solution
Tetrasodium salt of EDTA solution
Triisopropanolamine salt of 2,4-Dichlorophenoxyacetic acid solution
Urea, Ammonium nitrate solution (not containing Ammonia)
•Urea, Ammonium phosphate solution
•Vegetable protein solution (hydrolysed)

Footnotes to Table II

[1] Because of very high reactivity or unusual conditions of carriage or potential compatibility problems, this product is not assigned to a specific group in the Compatibility Chart. For additional compatibility information, contact Commandant (G-MTH), U.S. Coast Guard, 2100 Second Street, SW., Washington, D.C. 20593-0001. Telephone (202) 267-1577.

[2] See Appendix I - Exceptions to the Chart.

Appendix I - Exceptions to the Chart

Entries in **boldface** are newly authorized exceptions to 46 CFR Part 150

(a). The binary combinations listed below have been tested as prescribed in Appendix III and found not to be dangerously reactive. These combinations are exceptions to the Compatibility Chart (Figure 1) and may be stowed in adjacent tanks.

Member of reactive group	Compatible with
Acetone (18)	Diethylenetriamine (7)
Acetone cyanohydrin (0).	Acetic acid (4)
Acrylonitrile (15)	Triethanolamine (8)
1,3-Butylene glycol (20).	Morpholine (7)
1,4-Butylene glycol (20).	Ethylamine (7)
	Triethanolamine (8)
Caustic potash, 50% or less (5).	Ethyl alcohol (20)
	Ethylene glycol (20)

Member of reactive group	Compatible with
	Isopropyl alcohol (20)
	Methyl alcohol (20)
	iso-Octyl alcohol (20)
Caustic soda, 50% or less (5).	Butyl alcohol (20)
	tert-Butyl alcohol, Methanol mixtures
	Decyl alcohol (20)
	Diacetone alcohol (20)
	Diethylene glycol (40)
	Ethyl alcohol (20)
	Ethyl alcohol (40%, whiskey) (20)
	Ethylene glycol (20)
	Ethylene glycol, Diethylene glycol mixture (20)
	Ethyl hexanol (Octyl alcohol) (20)
	Methyl alcohol (20)
	Nonyl alcohol (20)
	Propyl alcohol (20)
	Propylene glycol (20)
	Sodium chlorate (0)
	iso-Tridecanol (20)
Dodecyl and Tetradecylamine mixture (7).	Tall oil, fatty acid (34)
Ethylenediamine (7)	Butyl alcohol (20)
	tert-Butyl alcohol (20)
	Butylene glycol (20)
	Creosote (21)
	Diethylene glycol (40)
	Ethyl alcohol (20)
	Ethylene glycol (20)
	Ethyl hexanol (20)
	Glycerine (20)
	Isononyl alcohol (20)
	Isophorone (18)
	Methyl butyl ketone (18)
	Methyl iso-butyl ketone (18)
	Methyl ethyl ketone (18)
	Propyl alcohol (20)
	Propylene glycol (20)
Oleum (0).....	Hexane (31)
	Dichloromethane (Methylene chloride) (36)
	Perchloroethylene (36)
1,2-Propylene glycol (20).	Diethylenetriamine (7)
	Polyethylene polyamines (7)
	Triethylenetetramine (7)
Sulfuric acid (2).....	Coconut oil (34)
	Coconut oil acid (34)
	Palm oil (34)
	Tallow (34)
Sulfuric acid, 98% or less (2).	Choice white grease tallow (34)

(b). The binary combinations listed below have been determined to be dangerously reactive, based on either data obtained in the literature or on laboratory testing which has been carried out in accordance with procedures prescribed in Appendix III. These combinations are exceptions to the Compatibility Chart (Figure 1) and may not be stowed in adjacent tanks.

Acetone cyanohydrin (0) is not compatible with Groups 1-12, 16, 17 and 22.

Acrolein (19) is not compatible with Group 1, Non-Oxidizing Mineral Acids.

Acrylic acid (4) is not compatible with Group 9, Aromatic Amines.

Alkyl benzene sulfonic acid (0) is not compatible with Groups 1-3, 5-9, 15, 16, 18, 19, 30, 34, 37, and strong oxidizers.

Allyl alcohol (15) is not compatible with Group 12, Isocyanates.

Aluminum sulfate solution (43) is not compatible with Groups 5-11.

Ammonium bisulfite solution (43) is not compatible with Groups 1, 3, 4, and 5.

Benzenesulfonyl chloride (0) is not compatible with Groups 5-7, and 43.

gamma-Butyrolactone (0) is not compatible with Groups 1-9.

Crotonaldehyde (19) is not compatible with Group 1, Non-Oxidizing Mineral Acids.

Cyclohexanone, Cyclohexanol mixture (18) is not compatible with Group 12, Isocyanates.

2,4-Dichlorophenoxyacetic acid, Triisopropanolamine salt solution (43) is not compatible with Group 3, Nitric Acid.

Dimethylamine salt of 2,4-Dichlorophenoxyacetic acid solution (0) is not compatible with Groups 1-5, 11, 12, and 16.

Dimethyl hydrogen phosphite (34) is not compatible with Groups 1 and 4.

Dimethyl naphthalene sulfonic acid, sodium salt solution (34) is not compatible with Group 12, Formaldehyde, and strong oxidizing agents.

Dodecylbenzenesulfonic acid (0) is not compatible with oxidizing agents and Groups 1, 2, 3, 5, 6, 7, 8, 9, 15, 16, 18, 19, 30, 34, and 37.

Ethyl chlorothioformate (0) is not compatible with Groups 5, 6, 7, 8, and 9.

Ethylenediamine (7) is not compatible with Ethylene dichloride (36).

Ethylene dichloride (36) is not compatible with Ethylenediamine (7).

Ethylidene norbornene (30) is not compatible with Groups 1-3 and 5-8.

2-Ethyl-3-propylacrolein (19) is not compatible with Group 1, Non-Oxidizing Mineral Acids.

Fish oil (34) is not compatible with Sulfuric acid (2).

Formaldehyde (over 50%) in Methyl alcohol (over 30%) (19) is not compatible with Group 12, Isocyanates.

Formic acid (4) is not compatible with Furfural alcohol (20).

Furfuryl alcohol (20) is not compatible with Group 1, Non-Oxidizing Mineral Acids and Formic acid (4).

2-Hydroxyethyl acrylate is not compatible with Groups 2, 3, 5-8 and 12.

Isophorone (18) is not compatible with Group 8, Alkanolamines.

Magnesium chloride solution (0) is not compatible with Groups 2, 3, 5, 6 and 12.

Mesityl oxide (18) is not compatible with Group 8, Alkanolamines.

Methyl tert-butyl ether (41) is not compatible with Group 1, Non-oxidizing Mineral Acids.

Naphtha, cracking fraction (33) is not compatible with strong acids, caustics or oxidizing agents.

o-Nitrophenol (0) is not compatible with Groups 2, 3, and 5-10.

Octyl nitrates (all isomers) (34) is not compatible with Group 1, Non-oxidizing Mineral Acids.

Oleum (0) is not compatible with Sulfuric acid (2) and 1,1,1-Trichloroethane (36).

Pentene, Miscellaneous hydrocarbon mixtures (30) are not compatible with strong acids or oxidizing agents.

Sodium chlorate solution (50% or less) (0) is not compatible with Groups 1-3, 5, 7, 8, 10, 12, 13, 17 and 20.

Sodium dichromate solution (70% or less) (0) is not compatible with Groups 1-3, 5, 7, 8, 10, 12, 13, 17 and 20.

Sodium dimethyl naphthalene sulfonate solution (34) is not compatible with Group 12, Formaldehyde and strong oxidizing agents.

Sodium hydrogen sulfide, Sodium carbonate solution (0) is not compatible with Groups 6 (Ammonia) and 7 (Aliphatic amines).

Sodium hydrosulfide (5) is not compatible with Groups 6 (Ammonia) and 7 (Aliphatic amines).

Sodium hydrosulfide, Ammonium sulfide solution (5) is not compatible with Groups 6 (Ammonia) and 7 (Aliphatic amines).

Sodium polyacrylate solution (43) is not compatible with Group 3, Nitric Acid.

Sodium salt of Ferric hydroxyethylethylenediamine triacetic acid solution (43) **is not compatible with Group 3, Nitric acid.**

Sodium silicate solution (43) is not compatible with Group 3, Nitric Acid.

Sodium sulfide, hydrosulfide solution (0) is not compatible with Groups 6 (Ammonia) and 7 (Aliphatic amines).

Sodium thiocyanate (56% or less) (0) is not compatible with Groups 1-4.

Sulfuric acid (2) is not compatible with Fish oil (34), or Oleum (0).

Tallow fatty acid (34) is not compatible with Group 5, Caustics.

1,1,1-Trichloroethane (36) is not compatible with Oleum (0).

Trichloroethylene (36) is not compatible with Group 5, Caustics.

Triethyl phosphite (34) is not compatible with Groups 1, and 4.

Trimethyl phosphite (34) is not compatible with Groups 1 and 4.

PART 151—BARGES CARRYING BULK LIQUID HAZARDOUS MATERIAL CARGOES

6. The authority citation for Part 151 is revised to read as follows:

Authority: 33 U.S.C. 1903(b), 46 U.S.C. 3703; 49 CFR 1.46.

7. In Part 151, by removing the words "gage", "gages", and "gaging" wherever they may appear and adding, in their place, the words "gauge", "gauges", or "gauging", respectively.

§ 151.01–10 [Amended]

8. In § 151.01–10, by removing Table 151.01–10(b) following paragraph (b) and by removing from paragraphs (b), (c), (c–1), (d), and (e) the words "Table 151.01–10(b)" and adding, in their place, the words "Table 151.05".

§§ 151.01–15, 151.01–20, 151.04–1, and 151.04–5 [Amended]

9. In §§ 151.01–15 (a) and (b), 151.01–20 (a) and (b), 151.04–1(c), and 151.04–5(h), by removing the words "Table 151.01–10(b)" and adding, in their place, the words "Table 151.05".

10. In § 151.05–1, by revising paragraphs (a), (o), and (p) to read as follows:

§ 151.05–1 Explanation of column headings in Table 151.05.

(a) *Cargo identification/name.* This column identifies cargoes by name. Words in italics are not part of the cargo name but may be used in addition to the cargo name. When one entry references another entry by use of the word "see" and both names are in roman type, either name may be used as the cargo name (e.g., "Diethyl ether *see* Ethyl ether"). However, the referenced entry is preferred.

* * * * *

(o) *Special requirements.* This column refers to requirements in Subparts 151.50, 151.55, 151.56, and 151.58 of this part which apply to specific cargoes. The section numbers listed omit the preceding part designation, "151".

* * * * *

(p) *Electrical hazard class—group.* This column refers to the hazardous material class and group ratings.

* * * * *

11. By revising Table 151.05 to read as follows:

TABLE 151.05—SUMMARY OF

Cargo identification			Hull type	Cargo segregation Tank	Tanks		
Name	Pressure	Temp.			Type	Vent	Gaug devi
Acetaldehyde	Press.	Amb.	II	1NA 2ii	Ind. Pressure	SR	R
Acetic acid	Atmos.	Amb.	III	1i 2ii	Integral Gravity	Open	O
Acetic anhydride	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	R
Acetone cyanohydrin	Atmos.	Amb.	I	1ii 2i	Integral Gravity	PV	Cl
Acetonitrile	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	R
*Acrylic acid	Atmos	Amb	III	1ii 2ii	Integral Gravity	PV	R
Acrylonitrile	Atmos.	Amb.	II	1ii	Integral Gravity	PV	Cl
Adiponitrile	Atmos.	Amb.	II	1ii 2i	Integral Gravity	PV	C
Allyl alcohol	Atmos.	Amb.	I	1ii 2ii	Integral Gravity	PV	Cl
Allyl chloride	Atmos.	Amb.	I	1ii 2ii	Integral Gravity	PV	Cl
*Aluminum sulfate solution	Atmos	Amb	III	1i 2i	Integral Gravity	Open	C
Aminoethylethanolamine	Atmos.	Amb.	III	1i 2i	Integral Gravity	Open	C
Ammonia, anhydrous	Press.	Amb.	II	1NA 2ii	Ind. Pressure	SR 250 p.s.i.	R
Ammonia, anhydrous	Atmos.	Low	II	1NA 2ii	Ind. Gravity	PV	R
*Ammonium bisulfite solution (70% or less).	Atmos	Amb	III	1i 2i	Integral Gravity	Open	C
Ammonium hydroxide (28% or less NH_3).	Atmos.	Amb.	III	1i	Integral Gravity	PV	R
Aniline	Atmos.	Amb.	I	1ii 2ii	Integral Gravity	PV	Cl
*Anthracene oil (Coal tar fraction).	Atmos	Amb Elev	II	1ii 2ii	Integral Gravity	Open	C
*Argon, liquefied	Press	Low	III	1NA 2i	Ind. Pressure	SR	R

OF MINIMUM REQUIREMENTS

Gauging device	Cargo transfer		Environmental control		Fire protection required	Special requirements (Section)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
	Piping class	Control	Cargo tanks	Cargo handling					
Restr.	II	P-1	Inerted	Vent F	Yes	.55-1(h)	I-C	NA	G
Open	II	G-1	NR	Vent N	Yes	.55-1(g)	I-D	NA	G
Restr.	II	G-1	NR	Vent F	Yes	.55-1(g)	I-D	NA	G
Closed	I	G-1	NR	Vent F	Yes	.50-5 .50-70(b) .50-73 .50-81	NA	NA	G
Restr.	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
Restr	II	G-1	NR	Vent F	Yes	.50-70(a) .50-73 .50-81 .58-1(a)	I-D	NA	G
Closed	II	G-1	NR	Vent F	Yes	.55-1(e) .50-70(a)	I-D	NA	G
Open	II	G-1	NR	Vent F	Yes	No	NA	NA	G
Closed	I	G-1	NR	Vent F	Yes	.50-5 .50-73	I-C	NA	G
Closed	I	G-1	NR	Vent F	Yes	.50-5	I-D	NA	G
Open	II	G-1	NR	Vent N	Yes	.58-1(e)	NA	NA	G
Open	II	G-1	NR	Vent N	Yes	.55-1(b)	NA	NA	G
Restr.	II	P-2	NR	Vent F	No	.50-30 .50-32	I-D	NA	8
Restr.	II-L	G-2	NR	Vent F	No	.50-30 .50-32	I-D	.40-1(b)(1)	8
Open	II	G-1	NR	Vent N	No	.50-73 .56-1(a), (b), (c)	NA	NA	G
Restr.	II	G-1	NR	Vent F	No	No	I-D	NA	G
Closed	I	G-1	NR	Vent F	Yes	.50-73	NA	NA	G
Open	II	G-1	NR	Vent N	Yes	No	I-D	NA	G
Restr	II-L	P-1	NR	Vent F	No	.40-1(a) .50-30 .50-36.	NA	.40-1(a)	G

Cargo identification			Hull type	Cargo segregation Tank	Tanks		
Name	Pressure	Temp.			Type	Vent	G c
Benzene	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	
Benzene hydrocarbon mixtures (containing Acetylenes) (*having 10% Benzene or more*).	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	
Benzene hydrocarbon mixtures (*having 10% Benzene or more*).	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	
Benzene, Toluene, Xylene mixtures (*having 10% Benzene or more*).	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	
Butadiene	Press.	Amb.	II	1NA 2ii	Ind. Pressure	SR	
Butadiene, **Butylene** mixtures (*containing Acetylenes*).	Press	Amb	II	1NA 2ii	Ind. Pressure	SR	
iso-Butyl acrylate	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	
n-Butyl acrylate	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	
Butylamine **(all isomers)**	Atmos.	Amb.	II	1ii 2ii	Ind. Gravity	PV	
Butyl methacrylate	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	
iso-Butyraldehyde	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	
n-Butyraldehyde	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	
Butyraldehydes (crude)	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	
Camphor oil (*light*)	Atmos.	Amb.	II	1ii 2ii	Integral Gravity	Open	
Carbolic oil	Atmos.	Amb.	I	1ii 2ii	Integral Gravity	PV	
Carbon dioxide, liquid	Press.	Low	III	1 NA 2i	Ind. Pressure	SR	
Carbon disulfide	Atmos.	Amb.	II	1NA 2ii	Ind. Gravity	PV	
Carbon tetrachloride	Atmos.	Amb.	III	1i 2i	Integral Gravity	PV	
Caustic potash solution	Atmos.	Amb. Elev.	III	1i 2i	Integral Gravity	Open	

MINIMUM REQUIREMENTS—Continued

	Gauging device	Cargo transfer: Piping class	Cargo transfer: Control	Environmental control: Cargo tanks	Environmental control: Cargo handling space	Fire protection required	Special requirements (Section)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
V	Open	II	G-1	NR	Vent F	Yes	.50-60	I-D	NA	G
V	Restr.	II	G-1	NR	Vent F	Yes	.56-1(b), (d), (f), (g)	I-D	NA	G
V	Restr.	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
V	Restr.	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
R	Restr.	II	P-2	NR	Vent F	Yes	.50-70(a)	I-B	NA	8
R	Restr.	II	P-1	NR	Vent F	Yes	.50-30 .50-70(a) .56-1(b), (d), (f), (g)	I-B	NA	8
V	Open	II	G-1	NR	Vent N	Yes	.50-70(a) .50-81(a), (b)	I-D	NA	G
V	Open	II	G-1	NR	Vent N	Yes	.50-70(a) .50-81(a), (b)	I-D	NA	G
V	Closed	II	G-1	NR	Vent F	Yes	.55-1(c)	I-D	NA	G
V	Restr.	II	G-1	NR	Vent F	Yes	.50-70(a) .50-81(a), (b)	I-D	NA	G
V	Open	II	G-1	NR	Vent F	Yes	.55-1(h)	I-C	NA	G
V	Open	II	G-1	NR	Vent F	Yes	.55-1(h)	I-C	NA	G
V	Open	II	G-1	NR	Vent F	Yes	No	I-C	NA	G
n	Open	II	G-1	NR	Vent N	Yes	No	I-D	NA	G
V	Closed	I	G-1	NR	Vent F	Yes	.50-5 .50-75	NA	NA	G
R	Restr.	I-L	P-1	NR	Vent F	No	.50-30	NA	.40-1(b)(1)	G
V	Restr.	II	G-1	Inert	Vent F	Yes	.50-40 .50-41	I-A	NA	G
V	Open	II	G-1	NR	Vent N	No	No	NA	NA	G
n	Open	II	G-1	NR	NR	No	.50-73 .55-1(j)	NA	NA	G

TABLE 151.05—SUMMARY OF MINIMUM

Cargo identification			Hull type	Cargo segregation Tank	Tanks		
Name	Pressure	Temp.			Type	Vent	Gauging device
Caustic soda solution	Atmos.	Amb. Elev.	III	1i ■	Integral Gravity	Open	Open
Chlorine	Press.	Amb.	I	1NA 2ii	Ind. Pressure	SR 300 p.s.i.	Indirect
Chlorobenzene	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	Open
Chloroform	Atmos.	Amb.	III	1i 2i	Integral Gravity	Open	Open
Chlorohydrins	Atmos.	Amb.	I	1ii 2ii	Integral Gravity	PV	Closed
Chlorosulfonic acid	Atmos.	Amb.	III	1ii 2ii	Integral Gravity	PV	Open
*Coal tar naphtha solvent	Atmos	Amb	III	1i 2i	Integral Gravity	PV	Restr
*Coal tar pitch (molten)	Atmos	Elev	III	1ii 2ii	Integral Gravity	PV	Restr
Creosote	Atmos.	Amb.	III	1i 2i	Integral Gravity	Open	Open
Cresols (all isomers)	Atmos.	Amb.	III	1i 2i	Integral Gravity	Open	Open
**Cresols with 5% or less Phenol see* Cresols (all isomers).							
**Cresols with more than 5% Phenol see* Phenol.							
Cresylate spent caustic	Atmos.	Amb.	III	1ii 2i	Integral Gravity	Open	Open
Crotonaldehyde	Atmos.	Amb.	II	1ii 2ii	Integral Gravity	PV	Restr.
*Cyclohexanone	Atmos	Amb	III	1i 2ii	Integral Gravity	PV	Restr
*Cyclohexylamine	Atmos	Amb	III	1ii 2ii	Integral Gravity	PV	Restr
Iso-Decyl acrylate	Atmos.	Amb.	III	1i 2i	Integral Gravity	Open	Open
*Dichlorobenzene (all isomers).	Atmos	Amb	III	1ii 2i	Integral Gravity	PV	Restr
*1,1-Dichloroethane	Atmos	Amb	III	1ii 2ii	Integral Gravity	PV	Restr
Dichlorodifluoromethane	Press.	Amb.	III	1NA 2i	Ind. Pressure	SR	Restr.

UM REQUIREMENTS—Continued

	Cargo transfer		Environmental control		Fire protection required	Special requirements (Section)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
ing ce	Piping class	Control	Cargo tanks	Cargo handling space					
pen	II	G-1	NR	NR	No	.50-73 .55-1(j)	NA	NA	G
ect	I	P-2	NR	Vent F	No	.50-30 .50-31	NA	NA	2
pen	II	G-1	NR	Vent N	Yes	No	I-D	NA	G
pen	II	G-1	NR	Vent F	No	No	NA	NA	G
sed	I	G-1	NR	Vent F	Yes	.50-5	I-D	NA	G
pen	II	G-1	NR	Vent N	No	.50-20 .50-21 .50-73	I-B	NA	G
estr	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
estr	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
pen	II	G-1	NR	Vent N	Yes	No	NA	NA	G
pen	II	G-1	NR	Vent N	Yes	No	NA	NA	G
pen	II	G-1	NR	Vent N	No	.50-73 .55-1(b)	NA	NA	G
estr.	II	G-1	NR	Vent F	Yes	.55-1(h)	I-C	NA	G
estr	II	G-1	NR	Vent F	Yes	.56-1(a), (b)	I-D	NA	G
estr	II	G-1	NR	Vent F	Yes	.56-1(a), (b), (c), (g)	I-D	NA	G
pen	II	G-1	NR	Vent N	Yes	.50-70(a) .50-81(a), (b) .55-1(c)	NA	NA	G
estr	II	G-1	NR	Vent F	Yes	.56-1(a), (b)	I-D	NA	G
estr	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
str.	II	P-1	NR	NR	No	No	NA	NA	8

TABLE 151.05—SUMMARY OF MINIM

Cargo identification			Hull type	Cargo segregation Tank	Tanks		
Name	Pressure	Temp.			Type	Vent	Gau dev
2,2'-Dichloroethyl ether	Atmos.	Amb.	II	1ii 2ii	Integral Gravity	PV	R
Dichloromethane	Atmos.	Amb.	III	1i 2i	Integral Gravity	PV	R
*2,4-Dichlorophenoxyacetic acid, diethanolamine salt solution.	Atmos	Amb	III	1i 2i	Integral Gravity	Open	C
*2,4-Dichlorophenoxyacetic acid, dimethylamine salt solution.	Atmos	Amb/ Elev	III	1i 2i	Integral Gravity	PV	F
*2,4-Dichlorophenoxyacetic acid, triisopropanolamine salt solution.	Atmos	Amb	III	1i 2i	Integral Gravity	Open	C
1,1-, 1,2-, or 1,3-Dichloropropane.	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	R
1,3-Dichloropropene	Atmos.	Amb.	II	1ii 2ii	Integral Gravity	PV	R
*Dichloropropene, Dichloropropane mixtures.	Atmos	Amb	II	1ii 2ii	Integral Gravity	PV	Cl
*2,2-Dichloropropionic acid	Atmos	Amb	II	1ii 2i	Integral Gravity	PV	F
Diethanolamine	Atmos.	Amb.	III	1i 2i	Integral Gravity	Open	C
Diethylamine	Atmos.	Amb.	III	1ii 2ii	Integral Gravity	PV	R
Diethylenetriamine	Atmos.	Amb.	III	1i 2i	Integral Gravity	Open	C
*Diethyl ether *see* Ethyl ether.							
Diisobutylamine	Atmos.	Amb.	III	1ii 2ii	Integral Gravity	PV	F
Diisopropanolamine	Atmos.	Amb.	III	1i 2i	Integral Gravity	Open	C
Diisopropylamine	Atmos.	Amb.	II	1ii 2ii	Integral Gravity	PV	Cl
*N,N-Dimethylacetamide	Atmos	Amb	III	1ii 2i	Integral Gravity	PV	I
Dimethylamine	Press.	Amb.	II	1NA 2ii	Ind. Pressure	SR	F
*Dimethylethanolamine	Atmos	Amb	III	1i 2ii	Integral Gravity	PV	I
Dimethylformamide	Atmos.	Amb.	III	1ii 2ii	Integral Gravity	PV	F

INIMUM REQUIREMENTS—Continued

Gauging device	Cargo transfer		Environmental control		Fire protection required	Special requirements (Section)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
	Piping class	Control	Cargo tanks	Cargo handling space					
Restr.	II	G-1	NR	Vent F	Yes	.55-1(f)	I-D	NA	G
Restr.	II	G-1	NR	Vent F	No	No	NA	NA	G
Open	II	G-1	NR	Vent N	No	.56-1(a), (b), (c), (g)	NA	NA	G
Restr	II	G-1	NR	Vent F	No	.56-1(a), (b), (c), (g)	NA	NA	G
Open	II	G-1	NR	Vent N	No	.56-1(a), (b), (c), (g)	NA	NA	G
Restr.	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
Restr.	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
Closed	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
Restr	II	G-1	Dry	Vent F	Yes	.50-73 .58-1(e)	NA	NA	G
Open	II	G-1	NR	Vent N	Yes	.55-1(c)	NA	NA	G
Restr.	II	G-1	NR	Vent F	Yes	.55-1(c)	I-C	NA	G
Open	II	G-1	NR	Vent N	Yes	.55-1(c)	NA	NA	G
Restr.	II	G-1	NR	Vent F	Yes	.55-1(c)	I-C	NA	G
Open	II	G-1	NR	Vent N	Yes	.55-1(c)	NA	NA	G
Closed	II	G-1	NR	Vent F	Yes	.55-1(c)	I-C	NA	G
Restr	II	G-1	NR	Vent F	Yes	.56-1(b)	I-D	NA	G
Restr.	II	P-2	NR	Vent F	Yes	.55-1(c)	I-C	NA	8
Restr	II	G-1	NR	Vent F	Yes	.56-1(b), (c)	I-C	NA	G
Restr.	II	G-1	NR	Vent F	Yes	.55-1(e)	I-D	NA	G

TABLE 151.05—SUMMARY OF MINIMU

Cargo identification			Hull type	Cargo segregation Tank	Tanks		
Name	Pressure	Temp.			Type	Vent	Gaug devi
1,4-Dioxane	Atmos.	Amb.	II	1ii 2ii	Integral Gravity	PV	Clo
*Diphenylmethane diisocyanate.	Atmos	Elev	II	1ii 2i	Integral Gravity	PV	Clo
Di-n-propylamine	Atmos.	Amb.	II	1ii 2ii	Integral Gravity	PV	Re
Epichlorohydrin	Atmos	Amb.	I	1ii 2ii	Integral Gravity	PV	Clo
Ethanolamine	Atmos.	Amb.	III	1i 2i	Integral Gravity	Open	O
Ethyl acrylate	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	Re
Ethylamine solution (72% or less).	Atmos.	Amb.	II	1ii 2ii	Integral Gravity	PV	Clo
N-Ethylbutylamine	Atmos.	Amb.	III	1ii 2ii	Integral Gravity	PV	Re
Ethyl chloride	Press.	Amb.	II	1NA 2I	Ind. Pressure	SR	Re
N-Ethylcyclohexylamine	Atmos.	Amb.	III	1ii 2ii	Integral Gravity	PV	Re
*Ethylene chlorohydrin	Atmos	Amb	I	1ii 2ii	Integral Gravity	PV	Clo
Ethylene cyanohydrin	Atmos.	Amb.	III	1i 2ii	Integral Gravity	Open	C
Ethylenediamine	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	Re
Ethylene dibromide	Atmos.	Amb.	II	1ii 2i	Integral Gravity	PV	Clo
Ethylene dichloride	Atmos.	Amb.	III	1ii 2ii	Integral Gravity	PV	Re
*Ethylene glycol propyl ether.	Atmos	Amb	III	1i 2i	Integral Gravity	Open	C
Ethylene oxide	Press.	Amb.	I	1NA 2I	Ind. Pressure	SR	Re
Ethyl ether	Atmos.	Amb.	II	1NA 2I	Ind. Gravity	PV	Clo
2-Ethyl hexyl acrylate	Atmos.	Amb.	III	1i 2ii	Integral Gravity	Open	C
Ethylidene norbornene	Atmos.	Amb.	II	1ii 2ii	Integral Gravity	PV	Clo
*Ethyl methacrylate	Atmos	Amb	III	1ii 2ii	Integral Gravity	PV	R

NIMUM REQUIREMENTS—Continued

Gauging device	Cargo transfer		Environmental control		Fire protection required	Special requirements (Section)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
	Piping class	Control	Cargo tanks	Cargo handling space					
Closed	II	G-1	Inerted	Vent F	Yes	No	I-C	NA	G
Closed	I	G-1	Inert Dry	Vent F	Yes	.50-5 .56-1(a), (b)	NA	Yes	G
Restr.	II	G-1	NR	Vent F	Yes	.55-1(c)	I-C	NA	G
Closed	I	G-1	NR	Vent F	Yes	.50-5	I-C	NA	G
Open	II	G-1	NR	Vent N	Yes	.55-1(c)	NA	NA	G
Restr.	II	G-1	NR	Vent F	Yes	.50-70(a) .50-81(a), (b)	I-D	NA	G
Closed	II	G-1	NR	Vent F	Yes	.55-1(b)	I-D	NA	G
Restr.	II	G-1	NR	Vent F	Yes	.55-1(b)	I-C	NA	G
Restr.	II	P-2	NR	Vent F	Yes	No	I-D	NA	8
Restr.	II	G-1	NR	Vent F	Yes	.55-1(b)	I-C	NA	G
Closed	I	G-1	NR	Vent F	Yes	.50-5 .50-73.	I-D	NA	G
Open	II	G-1	NR	Vent N	Yes	No	NA	NA	G
Restr.	II	G-1	NR	Vent F	Yes	.55-1(c)	I-D	NA	G
Closed	II	G-1	NR	Vent F	No	No	NA	NA	G
Restr.	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
Open	II	G-1	NR	Vent N	Yes	No	NA	NA	G
Restr.	II	P-2	Inert	Vent F	Yes	.50-10 .50-12	I-B	.40-1(c)	4
Closed	II	G-1	Inert	Vent F	Yes	.50-40 .50-42	I-C	NA	G
Open	II	G-1	NR	Vent N	Yes	.50-70(a) .50-81(a), (b)	NA	NA	G
Closed	II	G-1	NR	Vent F	Yes	.50-5 .50-74	I-C	NA	G
Restr	II	G-1	NR	Vent F	Yes	.50-70(a)	I-D	NA	G

Cargo identification			Hull type	Cargo segregation Tank	Tanks		
Name	Pressure	Temp.			Type	Vent	Ga de
2-Ethyl-3-propyl acrolein	Atmos.	Amb.	III	1i 2i	Integral Gravity	PV	
Ferric chloride solutions	Atmos.	Amb.	III	1ii 2ii	Integral Gravity	Open	
Formaldehyde solution (37% to 50%).	Atmos.	Amb.	III	1ii 2ii	Integral Gravity	PV	
Formic acid	Atmos.	Amb.	III	1ii 2i	Integral Gravity	PV	
Furfural	Atmos.	Amb.	III	1ii 2i	Integral Gravity	PV	
*Glutaraldehyde solution (50% or less).	Atmos	Amb	III	1i 2i	Integral Gravity	Open	
Hexamethylenediamine solution.	Atmos.	Amb.	III	1i 2i	Integral Gravity	PV	
*Hexamethyleneimine	Atmos	Amb	II	1ii 2i	Integral Gravity	PV	
Hydrochloric acid	Atmos.	Amb.	III	1NA 2ii	Ind. Gravity	Open	
Hydrochloric acid, spent (15% or less).	Atmos.	Amb.	III	1ii 2ii	Integral Gravity	Open	
Hydrofluorosilicic acid (25% or less).	Atmos.	Amb.	II	1ii 2ii	Ind. Gravity	PV	C
2-Hydroxyethyl acrylate	Atmos.	Amb.	I	1ii 2i	Integral Gravity	PV	C
*Isopentaldehyde (*mixed isomers*) *see* Valeraldehyde (iso-, n-).							
Isoprene	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	
*Kraft pulping liquors (free alkali content 3% or more) (*including: Black, Green, or White liquor*).	Atmos	Amb	III	1i 2i	Integral Gravity	Open	
*Mesityl oxide	Atmos	Amb	III	1ii 2ii	Integral Gravity	PV	
Methylacetylene, Propadiene mixture.	Press.	Amb	III	1 NA 2ii	Ind. Pressure	SR	
Methyl acrylate	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	

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INIMUM REQUIREMENTS—Continued

Gauging device	Cargo transfer: Piping class	Cargo transfer: Control	Environmental control: Cargo tanks	Environmental control: Cargo handling space	Fire protection required	Special requirements (Section)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
Restr.	II	G-1	NR	Vent F	Yes	No	I-C	NA	G
Open	II	G-1	NR	Vent N	No	.50-20 .50-75	I-B	NA	
Restr.	II	G-1	NR	Vent F	No	.55-1(h)	I-C	NA	G
Restr.	II	G-1	NR	Vent F	Yes	.55-1(j)	I-D	NA	G
Restr.	II	G-1	NR	Vent F	Yes	.55-1(h)	I-C	NA	G
Open	II	G-1	NR	Vent N	No	No	NA	NA	G
Restr.	II	G-1	NR	Vent F	Yes	.55-1(c)	I-D	NA	G
Restr	II	G-1	NR	Vent F	Yes	.56-1(b), (c)	I-C	NA	G
Open	II	G-1	NR	Vent F	No	.50-20 .50-22 .50-73	I-B	NA	4
Open	II	G-1	NR	Vent F	No	.50-75(a) .50-76 .50-73	I-B	NA	4
Closed	II	G-1	NR	Vent F	No	.50-20 .50-22 .50-77	I-B	NA	4
Closed	I	G-1	NR	Vent F	Yes	.50-5 .50-70(a) .50-73 .50-81(a), (b)	NA	NA	G
Open	II	G-1	NR	Vent F	Yes	.50-70(a) .50-81(a), (b)	I-D	NA	G
Open	II	G-1	NR	NR	No	.50-73 .56-1(a), (c), (g)	NA	NA	G
Restr	II	G-1	NR	Vent F	Yes	No	I-D	NA	G
Restr.	II	P-2	NR	Vent F	Yes	.50-79	I-C	NA	G
Restr.	II	G-1	NR	Vent F	Yes	.50-70(a) .50-81(a), (b)	I-D	NA	G

OPY AVAILABLE

TABLE 151.05—SUMMARY OF MINIMUM

Cargo identification			Hull type	Cargo segregation Tank	Tanks		
Name	Pressure	Temp.			Type	Vent	Gauging device
*Methylamine (anhydrous)	Press	Amb	I	1NA 2i	Ind. Pressure	SR	Closed
*Methylamine solution (42% or less).	Atmos	Amb	II	1NA 2ii	Ind. Gravity	PV	Closed
Methyl bromide	Press.	Amb.	I	1NA 2ii	Ind. Pressure	SR	Closed
Methyl chloride	Press.	Amb.	II	1NA 2ii	Ind. Pressure	SR	Restr
*Methylcyclopentadiene dimer.	Atmos	Amb	III	1i 2i	Integral Gravity	PV	Rest
*Methyldiethanolamine	Atmos	Amb	III	1i 2i	Integral Gravity	Open	Ope
2-Methyl-5-ethyl pyridine	Atmos.	Amb.	III	1i 2i	Integral Gravity	Open	Ope
Methyl methacrylate	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	Rest
2-Methylpyridine	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	Rest
alpha-Methyl styrene	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	Rest
Monochlorodifluoromethane	Press.	Amb.	III	1NA 2i	Ind. Pressure	SR	Rest
Morpholine	Atmos.	Amb.	III	1i 2ii	Integral Gravity	Open	Ope
Motor fuel anti-knock compounds (containing lead alkyls).	Atmos.	Amb.	I	1ii 2ii	Ind. Gravity	PV	Close
Nitric acid (70% or less)	Atmos.	Amb.	II	1ii 2ii	Integral Gravity	PV	Rest
Nitrobenzene	Atmos.	Amb.	I	1ii 2ii	Integral Gravity	PV	Close
*Nitrogen, liquefied	Press	Low	III	1NA 2i	Ind. Pressure	SR	Res
1- or 2-Nitropropane	Atmos.	Amb.	III	1ii 2ii	Integral Gravity	PV	Rest
*Octyl nitrates (all isomers)	Atmos	Amb	III	1i 2ii	Integral Gravity	Open	Ope
Oleum	Atmos.	Amb.	[illegible]	1ii 2ii	Integral Gravity	Open	Ope

MUM REQUIREMENTS—Continued

ging vice	Cargo transfer		Environmental control		Fire protection required	Special requirements (Section)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
	Piping class	Control	Cargo tanks	Cargo handling space					
osed	II	P-2	NR	Vent F	Yes	.50-30 .56-1(a), (b), (c)	I-D	NA	8
osed	II	G-1	NR	Vent F	Yes	.56 1(a), (b), (c), (g)	I-D	NA	G
osed	I	P-2	NR	Vent F	Yes	.50-5	I-D	NA	2
estr.	II	P-2	NR	Vent F	Yes	.55-1(c)	I-D	NA	8
Restr	II	G-1	NR	Vent F	Yes	No	I-B	NA	G
Open	II	G-1	NR	Vent N	Yes	.56-1(b), (c)	I-C	NA	G
Open	II	G-1	NR	Vent N	Yes	.55-1(e)	NA	NA	G
estr.	II	G-1	NR	Vent F	Yes	.50-70(a) .50-81(a), (b)	I-D	NA	G
estr.	II	G-1	NR	Vent F	Yes	.55-1(c)	I-D	NA	G
estr.	II	G-1	NR	Vent F	Yes	.50-70(a) .50-81(a), (b)	I-D	NA	G
estr.	I	P-1	NR	NR	No	No	NA	NA	8
Open	II	G-1	NR	Vent N	Yes	.55-1(c)	I-C	NA	G
osed	I	G-1	NR	Vent F	Yes	.50-6	I-D	NA	.50-6
estr.	II	G-1	NR	Vent F	No	.50-20 .50-73 .50-80	I-B	NA	4
osed	I	G-1	NR	Vent F	Yes	.50-5 .50-73	I-D	NA	G
Restr	II-L	P-1	NR	Vent F	No	.40-1(a) .50-30 .50-36	NA	.40-1(a)	G
estr.	II	G-1	NR	Vent F	Yes	.50-81	I-C	NA	G
Open	II	G-1	NR	Vent N	Yes	.50-81 .50-86	NA	NA	G
Open	II	G-1	NR	Vent N	No	.50-20 .50-21 .50-73	I-B	NA	4

TABLE 151.05—SUMMARY OF

Cargo identification			Hull type	Cargo segregation Tank	Tanks	
Name	Pressure	Temp.			Type	Vent
*Pentachloroethane	Atmos	Amb	III	1i 2i	Integral Gravity	PV
1,3-Pentadiene	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV
Perchloroethylene	Atmos.	Amb.	III	1i 2i	Integral Gravity	PV
Phenol	Atmos.	Amb.	I	1ii 2i	Integral Gravity	PV
Phosphoric acid	Atmos.	Amb.	III	1ii 2i	Integral Gravity	Oper
Phosphorus, elemental	Atmos.	Elev.	I	1ii 2i	Integral Gravity	PV
Phthalic anhydride (molten)	Atmos.	Elev.	III	1ii 2ii	Integral Gravity	PV
Polyethylene polyamines	Atmos.	Amb.	III	1i 2i	Integral Gravity	Oper
Polymethylene polyphenyl isocyanate.	Atmos.	Amb.	II	1ii 2i	Integral Gravity	PV
*Potassium hydroxide solution *see* Caustic potash solution.						
Iso-Propanolamine	Atmos.	Amb.	III	1i 2i	Integral Gravity	Oper
*Propanolamine (iso-, n-)	Atmos	Amb	III	1i 2i	Integral Gravity	Oper
Propionic acid	Atmos.	Amb.	III	1i 2ii	Integral Gravity	Oper
iso-Propylamine	Atmos.	Amb.	II	1ii 2ii	Integral Gravity	PV
Propylene oxide	Press.	Amb.	II	1NA 2ii	Ind. Pressure	SP
*iso-Propyl ether	Atmos	Amb	III	1i 2ii	Integral Gravity	PV
Pyridine	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV
*Sodium aluminate solution	Atmos	Amb/ Elev	III	1i 2i	Integral Gravity	Oper
Sodium chlorate solution (50% or less).	Atmos.	Amb.	III	1i 2i	Integral Gravity	Oper
*Sodium dichromate solution (70% or less).	Atmos	Amb	II	1ii 2ii	Integral Gravity	Oper

OF MINIMUM REQUIREMENTS—Continued

nt	Gauging device	Cargo transfer: Piping class	Cargo transfer: Control	Environmental control: Cargo tanks	Environmental control: Cargo handling space	Fire protection required	Special requirements (Section)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
PV	Restr	II	G-1	NR	Vent F	No	No	NA	NA	G
PV	Restr.	II	G-1	NR	Vent F	Yes	.50-70(a) .50-81	I-D	NA	G
PV	Restr.	II	G-1	NR	Vent F	No	No	NA	NA	G
PV	Closed	I	G-1	NR	Vent F	Yes	.50-5 .50-73	NA	NA	2
Open	Open	II	G-1	NR	Vent N	No	.50-20 .50-23	I-B	NA	4
PV	Closed	I	G-1	Water Pad	Vent F	Yes	.50-50	NA	NA	4-II
PV	Restr.	II	G-1	NR	Vent F	Yes	No	NA	NA	G
Open	Open	II	G-1	NR	Vent N	Yes	.55-1(e)	NA	NA	G
PV	Closed	II	G-1	Dry	Vent F	Yes	.55-1(e)	NA	NA	G
Open	Open	II	G-1	NR	Vent N	Yes	.55-1(c)	NA	NA	G
Open	Open	II	G-1	NR	Vent N	Yes	.56-1(b), (c)	I-D	NA	G
Open	Open	II	G-1	NR	Vent N	Yes	.55-1(g)	I-D	NA	G
PV	Closed	II	G-1	NR	Vent F	Yes	.55-1(c)	I-D	NA	G
SR	Restr.	II	P-1	Inerted	Vent F	Yes	.50-10 .50-13	I-B	NA	4
PV	Restr	II	G-1	Inert	Vent F	Yes	.50-70(a)	I-D	NA	G
PV	Restr.	II	G-1	NR	Vent F	Yes	.55-1(e)	I-D	NA	G
pen	Open	II	G-1	NR	NR	No	.50-73 .56-1(a), (b), (c)	NA	NA	G
pen	Open	II	G-1	NR	Vent N	No	No	NA	NA	G
pen	Closed	II	G-1	NR	Vent N	No	.50-5(d) .50-73 .56-1(b), (c)	NA	NA	G

Cargo identification			Hull type	Cargo segregation Tank	Tanks		
Name	Pressure	Temp.			Type	Vent	Gaugin device
*Sodium hydroxide solution *see* Caustic soda solution.							
*Sodium hypochlorite solution (15% or less).	Atmos	Amb	III	1ii 2ii	Integral Gravity	PV	Re
Sodium sulfide, hydrosulfide solutions (H_2S 15ppm or less).	Atmos.	Amb.	III	1i 2i	Integral Gravity	Open	Ope
Sodium sulfide, hydrosulfide solutions (H_2S greater than 15ppm but less than 200ppm).	Atmos.	Amb.	III	1ii 2i	Integral Gravity	PV	Re
Sodium sulfide, hydrosulfide solutions (H_2S greater than 200ppm).	Atmos.	Amb.	II	1ii 2i	Integral Gravity	PV	Clos
*Sodium thiocyanate solution (56% or less).	Atmos	Amb	III	1i 2i	Integral Gravity	Open	Op
Styrene *monomer*	Atmos.	Amb.	III	1i 2ii	Integral Gravity	Open	Op
Sulfur (molten)	Atmos.	Elev.	III	1i 2ii	Integral Gravity	Open	Op
Sulfur dioxide	Press	Amb.	I	1NA 2ii	Ind. Pressure	SR	Clos
Sulfuric acid	Atmos.	Amb.	III	1ii 2ii	Integral Gravity	Open	Op
Sulfuric acid, spent	Atmos.	Amb.	III	1ii 2ii	Integral Gravity	Open	Op
*1,1,2,2-Tetrachloroethane	Atmos	Amb	III	1ii 2i	Integral Gravity	PV	Re
Tetraethylenepentamine	Atmos.	Amb.	III	1i 2ii	Integral Gravity	Open	Op
*Tetrahydrofuran	Atmos	Amb	III	1i 2ii	Integral Gravity	PV	Re
Toluene diisocyanate	Atmos.	Amb.	I	1ii 2ii	Integral Gravity	PV	Clos
*1,1,2-Trichloroethane	Atmos	Amb	III	1ii 2i	Integral Gravity	PV	Re
Trichloroethylene	Atmos.	Amb.	III	1i 2i	Integral Gravity	PV	Re
1,2,3-Trichloropropane	Atmos.	Amb.	II	1ii 2i	Integral Gravity	PV	Re

MUM REQUIREMENTS—Continued

ging vice	Cargo transfer		Environmental control		Fire protection required	Special requirements (Section)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
	Piping class	Control	Cargo tanks	Cargo handling space					
Restr	II	G-1	NR	Vent F	Yes	.50-73 .56-1(a), (b)	NA	NA	[illegible]
Open	II	G-1	NR	Vent N	No	.50-73 .55-1(b)	NA	NA	[illegible]
Restr.	II	G-1	NR	Vent F	No	.50-73 .55-1(b)	NA	NA	G
Closed	II	G-1	NR	Vent F	No	.50-73 .55-1(b)	NA	NA	G
Open	II	G-1	NR	Vent N	Yes	**.58-1(a)**	NA	NA	G
Open	II	G-1	NR	Vent N	Yes	**.50-70(a)** **.50-81(a), (b)**	I-D	NA	G
Open	II	G-1	Vent N	Vent N	Yes	.50-55	I-C	.40-1(f)(1)	G
Closed	P-2		NR	Vent F	No	.50-30 .50-35 .55-1(j)	NA	NA	2
Open	II	G-1	NR	Vent N	No	.50-20 .50-21 **.50-73**	I-B	NA	4
Open	II	G-1	NR	Vent N	No	.50-20 .50-21 **.50-73**	I-B	NA	4
Restr	II	G-1	NR	Vent F	No	No	NA	NA	G
Open	II	G-1	NR	Vent N	Yes	.55-1(c)	NA	NA	G
Restr	II	G-1	NR	Vent F	Yes	.50-70(b)	I-C	NA	G
Closed	I	G-1	Dry N_2	Vent F	Yes	.50-5 .55-1(e)	NA	NA	G
Restr	II	G-1	NR	Vent F	No	.50-73 .56-1(a)	I-D	NA	G
Restr.	II	G-1	NR	Vent F	No	No	I-D	NA	[illegible]
Restr.	II	G-1	NR	Vent F	Yes	**.50-73** **.56-1(a)**	NA	NA	[illegible]

Cargo identification			Hull type	Cargo segregation Tank	Tanks		
Name	Pressure	Temp.			Type	Vent	G
Triethanolamine	Atmos.	Amb.	III	1i 2i	Integral Gravity	Open	
Triethylamine	Atmos.	Amb.	II	1ii 2ii	Integral Gravity	PV	
Triethylenetetramine	Atmos.	Amb.	III	1i 2i	Integral Gravity	Open	
*Urea, Ammonium nitrate solution (containing more than 2% NH_3).	Atmos	Amb	III	1i 2i	Integral Gravity	PV	
*Valeraldehyde (iso-, n-)	Atmos	Amb	III	1i 2ii	Integral Gravity	PV	
*Vanillan black liquor (free alkali content 3% or more).	Atmos	Amb	III	1i 2i	Integral Gravity	Open	
Vinyl acetate	Atmos.	Amb.	III	1i 2ii	Integral Gravity	PV	
Vinyl chloride	Press.	Amb.	II	1NA 2ii	Ind. Pressure	SR	
Vinyl chloride	Atmos.	Low	II	1NA 2ii	Ind. Gravity	PV	

MINIMUM REQUIREMENTS—Continued

	Gauging device	Cargo transfer: Piping class	Cargo transfer: Control	Environmental control: Cargo tanks	Environmental control: Cargo handling space	Fire protection required	Special requirements (Section)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
n	Open	II	G-1	NR	Vent N	Yes	.55-1(b)	NA	NA	G
V	Restr.	II	G-1	NR	Vent F	Yes	.55-1(e)	I-C	NA	G
n	Open	II	G-1	NR	Vent N	Yes	.55-1(b)	NA	NA	G
V	Restr	II	G-1	NR	Vent F	No	**.56-1(b)**	I-D	NA	G
V	Restr	II	G-1	Inert	Vent F	Yes	No	I-C	NA	G
n	Open	II	G-1	NR	NR	No	**.50-73** .56-1(a), (c), (g)	NA	NA	G
V	Open	II	G-1	NR	**Vent F**	Yes	**.50-70(a)** **.50-81(a), (b)**	I-D	NA	G
R	Closed	II	P-2	NR	Vent F	Yes	.50-30 .50-34	I-D	NA	8
V	Closed	II-L	G-2	NR	Vent F	Yes	.50-30 .50-34	I-D	.40-1(b)(1)	8

TABLE 151.05—SUMMARY OF MINIMUM R

Cargo identification			Hull type	Cargo segregation Tank	Tanks			
Name	Pressure	Temp.			Type	Vent	Gauging device	
Vinylidene chloride	Atmos.	Amb.	II	1NA 2ii	Ind. Gravity	PV	Closed	
*Vinyl toluene	Atmos	Amb	III	1i	Integral Gravity	PV	Restr	
For requirements see these sections:			151.10	151.13-5	151.15-1	151.15-5	151.15-10	1

* denotes newly added products.
Entries in **boldface** are changes.

Terms and symbols:

Segregation—Tank—
Line 1—Segregation of cargo from surrounding waters:
i = Skin of vessel (single skin) only required. Cargo tank wall can be vessel's hull.
ii = Double skin required. Cargo tank wall cannot be vessel's hull.
Line 2—Segregation of cargo space from machinery spaces and other spaces which have or could have a s
i = Single bulkhead only required. Tank wall can be sole separating medium.
ii = Double bulkhead required. Cofferdam, empty tank, pumproom, tank with Grade E Liquid (if compatible w

Internal tank inspection—
G—Indicates cargo is subject to general provisions of § 151.04-5(b).
Specific numbers in this column are changes from the general provisions.

Abbreviations used:

Tank type: Ind = Independent.
Vent:
PV = Pressure vacuum valve.
SR = Safety relief.
Gauging device: Restr. = Restricted.
General usage:
NR = No requirement.
NA = Not applicable.

M REQUIREMENTS—Continued

	Cargo transfer		Environmental control		Fire protection required	Special requirements (Section)	Electrical hazard class-group	Temp. control install.	Tank internal inspect. period—years
	Piping class	Control	Cargo tanks	Cargo handling spaces					
d	II	P-2	Padded	Vent F	Yes	.55-1(f) .50-70(a) .50-81(a), (b)	I-D	NA	G
r	II	G-1	NR	Vent F	Yes	.50-70(a) .50-81 .56-1(a), (b), (c), (g) .50-81	I-D	NA	G
5-0	151.20-1	151.20-5	151.25-1	151.25-2	151.30		111.105 (Subchapter J)	151.40	151.04-5

a source of ignition:

le with cargo) is satisfactory.

§ 151.12–5 [Amended]

12. In § 151.12–5, by removing from the list "n-Butyl acrylate" and "2-Ethylhexyl acrylate" and by adding in alphabetical order "Acetic acid", "Ammonium bisulfite solution", "Coal tar pitch", "2,2-Dichloropropionic acid", "N,N-Dimethylacetamide", "Dichloromethane", "Polyethylene polyamine", and "Pyridine".

13. In § 151.25–1, by adding a new paragraph (e) to read as follows:

§ 151.25–1 Cargo tank.

* * * * *

(e) *Dry.* All vapor space within the cargo tank is filled and maintained with a gas or vapor containing no more than 100 ppm water.

Subpart 151.50—[Amended]

14. By revising the heading to Subpart 151.50 to read as follows:

Subpart 151.50—Special Requirements

15. In § 151.50–5, by adding introductory text and by removing and reserving paragraph (a) as follows:

§ 151.50–5 Cargoes having toxic properties.

When Table 151.05 refers to this section, the following apply:

(a) [Reserved]

* * * * *

16. In § 151.50–20, by revising paragraph (k) to read as follows:

§ 151.50–20 Inorganic acids.

* * * * *

(k) The special requirements for hydrochloric acid in § 151.50–22, for hydroflurosilicic acid in § 151.50–77, for phosphoric acid in § 151.50–23, and for sulfuric acid in § 151.50–21 also apply to the carriage of those acids.

§ 151.50–22 [Amended]

17. In § 151.50–22(d), by removing the words "Commandant (MHM)" and adding, in their place, the words "Commandant (G–MTH)".

§ 151.50–24 [Removed]

18. By removing § 151.50–24, Hydrofluoric acid.

19. In § 151.50–30, by removing from paragraph (e) "§ 515.45–6(b)" and adding, in its place, "§ 151.45–6(b)", by removing from the table in paragraph (e) the line entry for "Hydrogen chloride", and by revising paragraph (g), to read as follows:

§ 151.50–30 Compressed gases.

* * * * *

(g) The special requirements for ammonia (anhydrous) in § 151.50–32, for argon in § 151.50–36, for chlorine in § 151.50–31, for nitrogen in § 151.50–36, and for vinyl chloride in § 151.50–34 also apply to the carriage of those gases.

§ 151.50–32 [Amended]

20. By revising the section heading for § 151.50–32 to read "Ammonia, anhydrous".

§ 151.50–33 [Removed]

21. By removing § 151.50–33, Anhydrous hydrogen chloride.

§ 151.50–34 [Amended]

22. In § 151.50–34(g)(3) and (k), by removing "29 CFR 1910.93q(g)" and adding, in its place, "29 CFR 1910.1017".

23. By adding a new § 151.50–36 to read as follows:

§ 151.50–36 Argon or nitrogen.

(a) A cargo tank that contains argon or nitrogen and that has a maximum allowable working pressure of 172 kPa (25 psig) or greater must have one of the following arrangements:

(1) A refrigeration system that keeps the tank pressure below the safety relief valve operating pressure when ambient temperatures are 46° C (115° F) air and 32° C (90° F) water.

(2) A relief valve or pressure control valve that maintains the tank pressure below the setting of the tank's required safety relief valve in ambient temperatures of 46° C (115° F) air and 32° C (90° F) water.

(b) A cargo tank with a maximum allowable working pressure of less than 172 kPa (25 psig) is approved by the Commandant (G–MTH) on a case by case basis.

(c) Section 151.50–30 also applies to the carriage of argon or nitrogen.

§§ 151.50–40 and 151.50–41 [Amended]

24. In §§ 151.50–40 and 151.50–41, by removing the words "carbon bisulfide" and adding, in their place, the words "carbon disulfide (*carbon bisulfide*)".

§ 151.50–42 [Amended]

25. In § 151.50–42(e), by removing "Class 1" and adding, in its place, "Class I" and by removing "§ 111.70–10(c)(4)" and adding, in its place, "Part 111, Subpart 111.105".

§ 151.50–55 [Amended]

26. By revising the section heading for § 151.50–55 to read "Sulfur (molten)".

§ 151.50–65 [Removed]

27. By removing § 151.50–65, Hydrogen fluoride.

28. By adding a new § 151.50–70 to read as follows:

§ 151.50–70 Cargoes requiring inhibition or stabilization.

When Table 151.05 refers to this section, that cargo must be—

(a) Inhibited; or

(b) Stabilized.

§§ 151.50–71 and 151–72 [Removed]

29. By removing § 151.50–71, Benzene-hydrocarbon mixtures (containing acetylenes), and § 151.50–72, Butadiene, butene mixture (inhibited).

30. By revising § 151.50–73 to read as follows:

§ 151.50–73 Chemical protective clothing.

When Table 151.05 refers to this section, the following apply:

(a) The person in charge of cargo handling operations shall ensure that the following chemical protective clothing constructed of materials resistant to permeation by the cargo being handled is worn by all personnel engaged in an operation listed in paragraph (b) of this section:

(1) Splash protective eyewear.

(2) Long-sleeved gloves.

(3) Boots or shoe covers.

(4) Coveralls or lab aprons.

Note to paragraph (a).—"Guidelines for the Selection of Chemical Protective Clothing", Third Edition, 1987, available from the American Conference of Governmental Industrial Hygienists, 6500 Glenway Ave., Cincinnati, OH 45211–4438, provides information on the proper clothing for the cargo being handled.

(b) The section applies during the following operations:

(1) Sampling cargo.

(2) Transferring cargo.

(3) Making or breaking cargo hose connections.

(4) Gauging a cargo tank.

(5) Opening cargo tanks.

(c) Coveralls or lab aprons may be replaced by splash suits or aprons constructed of light weight materials if, in the judgment of the person in charge of cargo handling operations:

(1) Contact with the cargo is likely to occur only infrequently and accidentally; and

(2) The splash suit or apron is disposed of immediately after contamination.

(d) Splash protective eyewear must be tight-fitting chemical-splash goggles, face shields, or similar items intended specifically for eye protection from chemical splashing or spraying.

(e) The person in charge of cargo handling operations shall ensure that each person in the vicinity of an operation listed in paragraph (b) of this section or in the vicinity of tanks, piping, or pumps being used to transfer the

cargo wears splash protective eyewear under paragraph (d) of this section.

§ 151.50–74 [Amended]

31. By revising the section heading of § 151.50–74 to read "Ethylidene norbornene."

§ 151.50–75 [Amended]

32. In § 151.50–75, by removing paragraph (b).

§ 151.50–78 [Removed]

33. By removing § 151.50–78, Industrial wastes (containing dimethyldisulfide, methyl mercaptan, and methomyl).

§ 151.50–80 [Amended]

34. In § 151.50–80(a), by adding at the end of the paragraph the words "See § 151.15–3(f)(2)."

35. In § 151.50–81, by revising the section heading and adding introductory text to read as follows:

§ 151.50–81 Special operating requirements for heat sensitive cargoes.

When Table 151.05 refers to this section, the following apply to the cargo:

* * * * *

§§ 151.50–82 and 151.50–83 [Removed]

36. By removing §§ 151.50–82, Polyvinylbenzyltrimethyl ammonium chloride solution, and 151.50–83, Sodium sulfide, hydrosulfide solutions.

§ 151.50–85 [Removed]

37. By removing § 151.50–85, 1,2,3-Trichloropropane.

38. By adding a new § 151.50–86 to read as follows:

§ 151.50–86 Octyl nitrates.

(a) The carriage temperature of octyl nitrates must be maintained below 100° C (212° F) in order to prevent the occurrence of a self-sustaining exothermic decomposition reaction.

(b) Octyl nitrates may not be carried in a deck tank unless the tank has a combination of insulation and a water deluge system sufficient to maintain the tank's cargo temperature below 100° C (212° F) and the cargo temperature rise at or below 1.5° C (2.7° F)/hour, for a fire of 650° C (1200° F).

39. In § 151.55–1, by adding words at the end of paragraphs (b), (c), (d), (e), (f), (g), and (j) to read as follows:

§ 151.55–1 General.

* * * * *

(b) * * *. (Equivalent to § 151.56–1 (a), (b), and (c).)

(c) * * *. (Equivalent to § 151.56–1 (b), (c), and (g).)

(d) * * *. (Equivalent to § 151.56–1 (a), (c), and (d).)

(e) * * *. (Equivalent to § 151.56–1 (b).)

(f) * * *. (Equivalent to § 151.56–1 (a) and (b).)

(g) * * *. (Equivalent to § 151.58–1 (a).)

* * * * *

(j) * * *. (Equivalent to § 151.56–1 (a) and (c).)

40. By adding a new Subpart 151.56 and § 151.56–1 to read as follows:

Subpart 151.56—Prohibited Materials of Construction

§ 151.56–1 Prohibited materials.

When one of the following paragraphs of this section is referenced in Table 151.05, the materials listed in that paragraph may not be used in components that contact the cargo or its vapor:

(a) Aluminium or aluminum alloys.

(b) Copper or copper alloys.

(c) Zinc, galvanized steel, or alloys having more than 10 percent zinc by weight.

(d) Magnesium.

(e) Lead.

(f) Silver or silver alloys.

(g) Mercury.

41. By adding a new Subpart 151.58 and § 151.58–1 to read as follows:

Subpart 151.58—Required Materials of Construction.

§ 151.58–1 Required materials.

When one of the following paragraphs of this section is referenced in Table 151.05, only those materials listed in that paragraph may be used in components that contact the cargo or its vapor.

(a) Aluminium, stainless steel, or steel covered with a protective lining or coating. (See § 151.15–3(f)(2).)

(b) [Reserved]

(c) [Reserved]

(d) Solid austenitic stainless steel.

(e) Stainless steel or steel covered with a suitable protective lining or coating. (See § 151.15–3(f)(2).)

PART 153—SHIPS CARRYING BULK LIQUID, LIQUEFIED GAS, OR COMPRESSED GAS HAZARDOUS MATERIALS

42. The authority citation for Part 153 is revised to read as follows:

Authority: 46 U.S.C. 3703; 49 CFR 1.46. Section 153.40 issued under 49 U.S.C. 1804. Sections 153.470 through 153.491, 153.1100 through 153.1132, and 153.1600 through 153.1608 also issued under 33 U.S.C. 1903(b).

43. In § 153.238, by adding new paragraphs (d) and (e) to read as follows:

§ 153.238 Required materials.

* * * * *

(d) Solid austenitic stainless steel.

(e) Stainless steel or steel covered with a suitable protective lining or coating. (See § 153.266.)

44. In § 153.558, by adding a note at the end of the section to read as follows:

§ 153.558 Special requirements for phosphoric acid.

* * * * *

Note to § 153.558.—"Phosphoric acid", as defined in § 153.2, includes phosphoric acid, superphosphoric acid, and aqueous solutions of phosphoric acid.

45. By adding a new § 153.560 to read as follows:

§ 153.560 Special requirements for octyl nitrates.

(a) The carriage temperature of octyl nitrates must be maintained below 100° C (212° F) in order to prevent the occurrence of a self-sustaining exothermic decomposition reaction.

(b) Octyl nitrates may not be carried in a deck tank unless the tank has a combination of insulation and a water deluge system sufficient to maintain the tank's cargo temperature below 100° C (212° F) and the cargo temperature rise at or below 1.5° C (2.7° F)/hour, for a fire of 650° C (1200° F).

§ 153.907 [Amended]

46. In § 153.907(b)(2), by removing "§ 153.5(b)" and adding, in its place, "§ 153.900(d)".

47. By revising § 153.933 to read as follows:

§ 153.933 Chemical protective clothing.

When Table 1 refers to this section, the following apply:

(a) The master shall ensure that the following chemical protective clothing constructed of materials resistant to permeation by the cargo being handled is worn by all personnel engaged in an operation listed in paragraph (b) of this section:

(1) Splash protective eyewear.

(2) Long-sleeved gloves.

(3) Boots or shoe covers.

(4) Coveralls or lab aprons.

Note to paragraph (a).—"Guidelines for The Selection of Chemical Protective Clothing", Third Edition, 1987, available from the American Conference of Governmental Industrial Hygienists, 6500 Glenway Ave., Cincinnati, OH 45211–4438, provides information on the proper clothing for the cargo being handled.

(b) This section applies during the following operations:

(1) Sampling cargo.

(2) Transferring cargo.

(3) Making or breaking cargo hose connections.

(4) Gauging a cargo tank.

(5) Opening cargo tanks.

(c) Coveralls or lab aprons may be replaced by splash suits or aprons constructed of light weight materials if, in the judgment of the master:

(1) Contact with the cargo being handled is likely to occur only infrequently and accidentally; and

(2) The splash suit or apron is disposed of immediately after contamination.

(d) Splash protective eyewear must be tight-fitting chemical-splash goggles, face shields, or similar items intended specifically for eye protection from chemical splashing or spraying.

(e) The master shall ensure that each person in the vicinity of an operation listed in paragraph (b) of this section or in the vicinity of tanks, piping, or pumps being used to transfer the cargo wears splash protective eyewear under paragraph (d) of this section.

§ 153.1025 [Amended]

48. In § 153.1025(c), by removing "428–1217" and adding, in its place, "267–1217".

49. By revising § 153.1035 to read as follows:

§ 153.1035 Acetone cyanohydrin or lactonitrile solutions.

No person may operate a tankship carrying a cargo of acetone cyanohydrin or lactonitrile solutions, unless that cargo is stabilized with an inorganic acid.

50. By revising Table 1 and Table 2 to Part 153 to read as follows:

TABLE 1—SUMMARY OF M

Cargo name [1]	IMO Annex II pollution category [2]	Cargo containment system [3]	Vent height [4]	Vent [5]
Acetic acid	D	III	4m	PV
Acetic anhydride	D	II	4m	PV
Acetone cyanohydrin	A	II	B/3	PV
Acetonitrile	III	II	B/3	PV
Acrylamide solution (50% or less)	D	II	NR	Open
Acrylic acid	D	III	4m	PV
Acrylonitrile	B	II	B/3	PV
Adiponitrile	D	III	4m	PV
*Alcohol(C6 - C17)(secondary) poly(3-6)ethoxylates.	A	III	NR	Open
*Alcohol(C6 - C17)(secondary) poly(7-12)-ethoxylates.	B	II	NR	Open
*Alcohol(C12 - C15) poly(1-3)ethoxylates	A	II	NR	Open
*Alcohol(C12 - C15) poly(3-11)ethoxylates	A	II	NR	Open
Alkyl acrylate-Vinyl pyridine copolymer in Toluene.	C	III	4m	PV
Alkylbenzenesulfonic acid (*greater than 4%*)	C	III	NR	Open
*Alkylbenzenesulfonic acid, sodium salt solution.	C	III	NR	Open
Allyl alcohol	B	II	B/3	PV
Allyl chloride	B	II	B/3	PV
*Aluminum chloride (30% or less), Hydrochloric acid (20% or less) solution.	D	III	4m	PV
2-(2-Aminoethoxy) ethanol	D	III	NR	Open
Aminoethylethanolamine	D	III	NR	Open
N-Aminoethylpiperazine	D	III	4m	PV
2-Amino-2-methyl-1-propanol (90% or less)	D	III	NR	Open
Ammonium hydroxide (28% or less NH_3)	C	III	4m	PV
Ammonium nitrate solution (greater than 45% and less than 93%).	D	II	NR	Open
Ammonium sulfide solution (45% or less)	B	II	B/3	PV
*Ammonium thiocyanate (25% or less), Ammonium thiosulfate (20% or less) solution.	C	III	NR	Open
Ammonium thiosulfate solution (60% or less)	C	III	NR	Open
(commercial, iso-, n-, sec-) Amyl acetate	C	III	4m	PV
Aniline	C	II	B/3	PV
*Anthracene oil (Coal tar fraction)	[A]	II	NR	Open
*Aviation alkylates (*C8 paraffins and isoparaffins, b. pt. 95-120 C*).	C	III	4m	PV
Benzene hydrocarbon mixtures (*having 10% Benzene or more*).	C	III	B/3	PV
Benzenesulfonyl chloride	D	III	4m	PV
*Benzene, Toluene, Xylene mixtures (*having 10% Benzene or more*).	@C	III	B/3	PV
*Benzyl acetate	C	III	NR	Open
Benzyl alcohol	C	III	NR	Open

F MINIMUM REQUIREMENTS

[5]	Gauge [6]	Fire protection system [7]	Special requirements [8]	Electrical hazard class and group [9]
.....	Restr	A	.238(a), .527, .554	I-D
.....	Restr	A	.238(a), .526, .527, .554	I-D
.....	Closed.....	A	.238(a), .316, .336, .408, .525, .526, .527, .912(a)(2), .933, .1002, .1004, .1020, .1035.	I-D
.....	Restr	A	.525, .526, .1020	I-D
.....	Closed.....	NSR	.409, .525(a), (c), (d), (e), .912(a)(1), .1002(a), .1004, .1020.	NA
.....	Restr	A	.238(a), .526, .912(a)(1), .1002(a), .1004	I-D
.....	Closed.....	A	.236(a), (c), (d), .316, .408, .525, .526, .527, .912(a)(1), .1004, .1020.	I-D
.....	Restr	A	.526	I-D
.....	Open	A	**.409**	NA
.....	Open	A	.409, .440, .908(a), (b)	NA
.....	Open	A	.409	NA
.....	Open	A	**.409**	NA
.....	Restr	A	.409	NA
.....	Open	B	.440, .908(a)	NA
.....	Open	NSR	.440, .903, .908(a), (b)	NA
.....	Closed.....	A	.316, .408, .525, .526, .527, .933, .1020	I-C
.....	Closed.....	A	.316, .408, .525, .526, .527, .1020	I-D
.....	Restr	NSR	.252, .526, .527, .554, .557, .933, .1045, .1052	I-B
.....	Open	**A, D**	.236(b), (c), .409	NA
.....	Open	A	.236(a), (b), (c), (g)	NA
.....	Restr	**A**	.236(b), (c), .409, .526	I-C
.....	Open	A	**.236(a), (b), (c), (g)**	I-D [15]
.....	Restr	**A, B, C**	.236(b), (c), (f), .526, .527	I-D
.....	Open	NSR	**.238(d), .252,** .336, .409, .554(a), (b)	NA
.....	Closed.....	**A**	.236(a), (b), (c), (g), **.316,** .372, .408, .525, .526, **.527,** .933, .1002, .1020.	I-D
.....	Open	NSR	None	NA
.....	Open	NSR	**.440, .908(b)**	NA
.....	Restr	A	.409	I-D
.....	Closed.....	A	.316, .408, .525, .526, .933, .1020	I-D
.....	Open	A	.409	I-D [15]
.....	Restr	B	**.409**	I-C
.....	Restr	**A, B**	.316, .440, .526, .908(b), .1060	I-D
.....	Restr	**A, D**	.236(a), (b), (c), (g), .409, .526	I-D
.....	Restr	B	.316, .440, .526, .908(b), .1060	I-D
.....	Open	A	None	I-D [15]
.....	Open	A	None	I-D

TABLE 1—SUMMARY OF MINIM

Cargo name [1]	IMO Annex II pollution category [2]	Cargo containment system [3]	Vent height [4]	Vent [5]
Benzyl chloride	B	II	B/3	PV
(iso-, n-) Butyl acetate	C	III	4m	PV
(iso-, n-) Butyl acrylate	D	II	4m	PV
Butylamine (all isomers)	C	II	B/3	PV
*Butyl benzenes (all isomers)	A	II	4m	PV
Butyl benzyl phthalate	A	II	NR	Open
*n-Butyl butyrate	C	III	4m	PV
1,2-Butylene oxide	C	III	4m	PV
n-Butyl ether	C	III	B/3	PV
*Butyl heptyl ketone	[C]	III	NR	Open
*iso-Butyl isobutyrate	[B]	III	4m	PV
Butyl methacrylate	D	III	4m	PV
Butyl methacrylate, Decyl methacrylate, Cetyl-Eicosyl methacrylate mixture.	D	III	4m	PV
*Butyl toluene	@A	II	NR	Open
(n-, crude) Butyraldehyde	B	III	4m	PV
iso-Butyraldehyde	C	III	4m	PV
Butyric acid	D	III	4m	PV
*Calcium bromide, Zinc bromide solution *see* Drilling brine (containing Zinc salts).				
Calcium hypochlorite solution (15% or less)	C	III	4m	PV
Calcium hypochlorite solution (more than 15%).	B	III	4m	PV
Calcium naphthenate in Mineral oil mixture	A	III	NR	PV
Camphor oil	B	II	4m	PV
Carbolic oil	A	II	B/3	PV
Carbon disulfide	B	II	B/3	PV
Carbon tetrachloride	B	III	B/3	PV
Cashew nut shell oil (untreated)	D	III	4m	PV
Caustic potash solution	C	III	NR	Open
Caustic soda solution	D	III	NR	Open
Cetyl-Eicosyl methacrylate	III	III	NR	Open
Chloroacetic acid (80% or less)	C	II	B/3	PV
*Chlorinated paraffins (C10 - C13)	A	I	NR	Open
Chlorobenzene	B	II	4m	PV
Chloroform	B	III	B/3	PV
(crude) Chlorohydrins	D	II	B/3	PV
4-Chloro-2-methylphenoxyacetic acid, dimethylamine salt **solution.**	[C]	III	NR	Open
o-Chloronitrobenzene *see* o-Nitrochlorobenzene				
2- or 3-Chloropropionic acid	C	III	NR	Open
Chlorosulfonic acid	C	I	B/3	PV
o-Chlorotoluene	A	III	4m	PV
m-Chlorotoluene	B	III	4m	PV
p-Chlorotoluene	B	II	4m	PV
Chlorotoluenes (mixed isomers)	A	II	4m	PV

NIMUM REQUIREMENTS—Continued

nt [5]	Gauge [6]	Fire protection system [7]	Special requirements [8]	Electrical hazard class and group [9]
	Closed	**A, B**	.316, .408, .525, .526, .527, .912(a)(2), .1004, .1020	I-D
	Restr	A	.409	I-D
	Restr	A	.526, .912(a)(1), .1002(a), (b), .1004	I-D
	Restr	A	.236(b), (c), .316, .408, .525, .526, .527, .1020	I-D
	Restr	A	.409	I-D [15]
n	Open	A	**.409**	I-D
	Restr	A	.409	I-D [15]
	Restr	A, C	.372, .408, .440, .500, .526, .530(a), (c), (e)-(g), (m)-(o), .1010, .1011.	I-B [15]
	Restr	**A**	.500, .525, .526, .1020	I-C
n	Open	A	None	NA
	Restr	A	.409	I-D [15]
	Restr	A, D	.526, .912(a)(1), .1002(a), (b), .1004	I-D
	Restr	**A, D**	.912(a)(1), .1002(a), (b), .1004	I-D
n	Open	A	.409	I-D
	Open	A	.526	I-C
	Open	A	.526	I-C
	Restr	A	.238(a), .554	I-D
	Restr	NSR	**.238(d)**	NA
	Restr	NSR	**.238(d)**	NA
	Open	A	**None**	NA
	Open	**A, B**	.409	I-D
	Closed	A	.408, .440, .525, .526, .908(b), .933, .1020	NA
	Closed	C	.236(c), .252, 408, .500, .515, .520, .525, .526, .527, .1020, .1040.	I-A
	Closed	NSR	.316, .409, .525, .526, .527, .1020	NA
	Restr	**A, B**	.526, .933	NA
n	Open	NSR	.236(a), (c), (g), .440, .908(b), .933	NA
n	Open	NSR	.236(a), (c), (g), .933	NA
n	Open	**A, D**	.912(a)(1), .1002(a), (b), .1004	NA
	Closed	NSR	**.238(e)**, .408, .440, .554, .908(b)	I-D
n	Open	A	.408	NA
	Restr	B	.409, .526	I-D
	Restr	NSR	.525, .526, .527, .1020	NA
	Closed	A	.408, .525, .526, .1020	I-D
n	Open	NSR	**.236(a), (b), (c), (g)**	NA
n	Open	A	.238(a), .440, .554, .908(b)	NA
	Closed	NSR	.408, .525, .526, .527, .554, .555, .602, .933, .1000, .1020, .1045.	I-B [11]
	Restr	B, C	.526	I-D
	Restr	B, C	.526	I-D
	Restr	**A, B**	.409, .440, .526, .908(b)	I-D
	Restr	**A, B**	**.409, .526**	I-D

TABLE 1—SUMMARY OF MINIMUM REQ

Cargo name [1]	IMO Annex II pollution category [2]	Cargo containment system [3]	Vent height [4]	Vent [5]	Ga
Coal tar	A	II	4m	PV	Rest
Coal tar naphtha solvent	B	III	4m	PV	Rest
Coal tar pitch (molten)	D	III	4m	PV	Rest
*Coconut oil, fatty acid	C	III	NR	Open	Ope
*Cottonseed oil, fatty acid	[C]	III	NR	Open	Ope
Creosote (wood)	A	II	NR	Open	Ope
Creosote (coal tar)	C	III	NR	Open	Ope
Cresols **(all isomers)**	A	II	NR	Open	Ope
**Cresols with 5% or less Phenol see* Cresols (all isomers)					
**Cresols with more than 5% Phenol see* Phenol					
Cresylate spent caustic (*mixtures of Cresols and Caustic soda solutions*).	A	II	NR	Open	Ope
*Cresylic acid, sodium salt solution *see* Cresylate spent caustic.					
Crotonaldehyde	B	II	B/3	PV	Res
Cumene	B	III	4m	PV	Res
*1,5,9-Cyclododecatriene	[B]	III	4m	PV	Res
*Cycloheptane	C	III	4m	PV	Res
Cyclohexane	C	III	4m	PV	Res
Cyclohexanol	C	III	NR	Open	Ope
Cyclohexanone	D	III	4m	PV	Res
*Cyclohexanone, Cyclohexanol mixture	[C]	III	4m	PV	Res
*Cyclohexyl acetate	B	III	4m	PV	Res
Cyclohexylamine	C	III	4m	PV	Res
p-Cymene	C	III	4m	PV	Res
*1,3-Cyclopentadiene dimer (molten)	B	II	4m	PV	Res
*Cyclopentane	C	III	4m	PV	Res
*Cyclopentene	B	III	4m	PV	Res
*iso-Decaldehyde	C	III	NR	Open	Ope
*n-Decaldehyde	B	III	NR	Open	Ope
*Decanoic acid	C	III	NR	Open	Ope
Decene	B	III	4m	PV	Res
(iso-, n-) Decyl acrylate	A	II	NR	Open	Ope
Decyl alcohol (all isomers)	B	III	NR	Open	Ope
Diammonium salt of Zinc ethylenediamine tetraacetic acid solution [13].	#	III	NR	Open	Ope
Dibutylamine	C	III	4m	PV	Res
Dibutyl phthalate	A	II	NR	Open	Ope
*Dichlorobenzenes **(all isomers)** [17]	B	II	4m	PV	Res
1,1-Dichloroethane	B	III	4m	PV	Res
2,2'-Dichloroethyl ether	B	II	4m	PV	Res
2,2'-Dichloroisopropyl ether	C	II	B/3	PV	Res
Dichloromethane	D	III	4m	PV	Res
2,4-Dichlorophenol [14]	A	II	4m	PV	Res
2,4-Dichlorophenoxyacetic acid, diethanolamine salt solution.	A	III	NR	Open	Ope

REQUIREMENTS—Continued

Gauge [6]	Fire protection system [7]	Special requirements [8]	Electrical hazard class and group [9]
Restr	B, D	.409	I-D[15]
Restr	A, D	.526	I-D
Restr	B, D	.252, .409	I-D[15]
Open	A	.440, .903, .908(a), (b)	NA
Open	A	.440, .903, .908(a)	NA
Open	A, D	.409	NA
Open	B, D	.409	I-D
Open	B	.409, .440, .908(b)	I-D
Open	NSR	.236(a), (c), .933	NA
Restr	A	.316, .525, .526, .527, .1020	I-C
Restr	A	.409	I-D
Restr	A	.236(b), (c), .409, .526, .912(a)(1), .1002(a), (b), .1004.	I-D [15]
Restr	A	.409	I-D [15]
Restr	A	.409, .440, .908(b)	I-D
Open	A	.440, .908(a), (b)	I-D
Restr	A	.236(a), (b), .526	I-D
Restr	A	.238(d), .526	I-D
Restr	A	.409	I-D [15]
Restr	A, C	.236(a), (b), (c), (g), .526	I-D
Restr	A	.409	I-D
Restr	A	.409, .440, .488, .908(a), (b)	I-C [15]
Restr	A	.409	I-D [15]
Restr	A	.409	I-D [15]
Open	A	None	I-C
Open	A	None	I-C
Open	A	.440, .903, .908(a), (b)	NA
Restr	A	.409	I-D
Open	A, C, D	.236(a), (b), (c), .409, .912(a)(1), .1002(a), (b), .1004	I-D[15]
Open	A	.440, .908(b)	I-D
Open	NSR	.238(e)	I-B
Restr	A, C, D	.236(b), (c), .526	I-C
Open	A	.409	I-D
Restr	B, D	.236(a), (b), .409, .440, .488 [17], .526, .908(a), (b) [17]	I-D
Restr	B	.526, .527	I-D
Restr	A	.236(a), (b), .526	I-C [15]
Restr	A, C, D	.236(a), (b), .316, .408(a), .440, .525, .526, .1020	I-D
Restr	NSR	.526	I-D [15]
Restr	A	.236(a), (b), (c), (g), .409, .440, .500, .501, .526, .908(b), .933.	I-D [15]
Open	NSR	.236(a), (b), (c), (g)	NA

TABLE 1—SUMMARY OF MINIM

Cargo name [1]	IMO Annex II pollution category [2]	Cargo containment system [3]	Vent height [4]	Vent [5]
2,4-Dichlorophenoxyacetic acid, dimethylamine salt solution.	A	III	NR	Open
2,4-Dichlorophenoxyacetic acid, triisopropanolamine salt solution.	A	III	NR	Open
1,1-, 1,2-, or 1,3-Dichloropropane	B	II	B/3	PV
1,3-Dichloropropene	B	II	B/3	PV
Dichloropropene, Dichloropropane mixtures	B	II	B/3	PV
2,2-Dichloropropionic acid	D	III	4m	PV
Diethanolamine	III	III	NR	Open
Diethylamine	C	III	B/3	PV
Diethylaminoethanol *see* Diethylethanolamine				
*2,6-Diethylaniline	[C]	III	NR	Open
Diethylbenzene	C	III	4m	PV
Diethylene gylcol methyl ether	C	III	NR	Open
Diethylenetriamine	D	III	NR	Open
Diethylethanolamine	C	III	4m	PV
Diethyl ether *see* Ethyl ether				
Di-(2-ethylhexyl) phosphoric acid	C	III	NR	Open
Diethyl phthalate	C	III	NR	Open
Diethyl sulfate	B	II	4m	PV
Diglycidyl ether of Bisphenol A	B	III	NR	Open
*Diglycidyl ether of Bisphenol F	B	III	NR	Open
*Di-n-hexyl adipate	B	III	NR	Open
Diisobutylamine	C	II	4m	PV
*Diisobutylcarbinol	@C	III	NR	Open
Diisobutylene	B	III	4m	PV
Diisobutyl phthalate	B	III	NR	Open
Diisopropanolamine	C	III	NR	Open
Diisopropylamine	C	II	B/3	PV
Diisopropyl benzene (all isomers)	A	II	NR	Open
N,N-Dimethylacetamide	D	III	B/3	PV
*N,N-Dimethylacetamide solution (40% or less).	D	III	B/3	PV
*Dimethyl adipate	B	III	NR	Open
Dimethylamine solution (45% or less)	C	III	B/3	PV
Dimethylamine solution (over 45% but not over 55%).	C	II	B/3	PV
Dimethylamine solution (over 55% but not over 65%).	C	II	B/3	PV
*2,6-Dimethylaniline	[C]	III	NR	Open
N,N-Dimethylcyclohexylamine	C	II	B/3	PV
Dimethylethanolamine	D	III	4m	PV
Dimethylformamide	D	III	4m	PV
*Dimethyl glutarate	C	III	NR	Open
Dimethyl hydrogen phosphite	#	III	4m	PV
*Dimethyl naphthalene sulfonic acid, sodium salt solution.	[A]	III	NR	Open

IMUM REQUIREMENTS—Continued

nt [5]	Gauge [6]	Fire protection system [7]	Special requirements [8]	Electrical hazard class and group [9]
	Open	NSR	None	NA
	Open	NSR	None	NA
	Restr	B	.525, .526, .1020	I-D
	Closed	A, B	.316, .336, .408, .525, .526, .527, .1020	I-D
	Closed	A, B, D	.316, .336, .408, .526, .527	I-D
	Restr	A	.238(e), .266, .500, .501, .554	NA
	Open	A	.236(b), (c)	NA
	Restr	A	.236(a), (b), (c), (g), .525, .526, .527, .1020	I-C
	Open	B, C, D	.236(b), .409, .440, .908(b)	NA
	Restr	A	.409	I-D
	Open	A	None	I-C
	Open	A	.236(b), (c)	NA
	Restr	A, C	.236(a), (b), (c), (g), .526	I-C
	Open	A, D	.236(b), (c)	I-D
	Open	A	None	I-D
	Closed	A	.236(a), (c), (d), .526	I-D [15]
	Open	A	.440, .908(a)	NA
	Open	A	.409, .440, .908(a)	NA
	Open	A	.409	NA
	Restr	A, C, D	.236(a), (b), (c), (g), .409, .525(a), (c), (d), (e), .526, .1020.	I-C
	Open	A	None	I-D [15]
	Restr	A	.409	I-D
	Open	A	.440, .908(a)	I-D
	Open	A	.236(b), (c), .440, .908(a), (b)	I-D [15]
	Closed	A	.236(b), (c), .408, .525, .526, .527, .1020	I-C
	Open	A	.409	I-D
	Restr	B	.236(b), .316, .525, .526, .527, .1020	I-D [15]
	Restr	B	.236(b), .316, .526	I-D [15]
	Open	A	.409, .440, .908(b)	NA
	Restr	A, C, D	.236(a), (b), (c), (g), .525, .526, .527, .1020	I-C
	Closed	A, C, D	.236 (a), (b), (c), (g), .316, .408, .525, .526, .527, .1020.	I-C
	Closed	A, C, D	.236 (a), (b), (c), (g), .316, .372, .408, .525, .526, .527, .1020.	I-C
	Open	B, C, D	.236(b), .409, .440, .908(b)	I-D [15]
	Restr	A, C	.236(a), (b), (c), (g), .316, .409, .525, .526, .527, .1020.	NA
	Restr	A, D	.236(b), (c), .526	I-C
	Restr	A, D	.236(b), .526	I-D
	Open	A	None	NA
	Restr	A, D	.526	NA
	Open	NSR	None	NA

TABLE 1—SUMMARY OF MINIMUM R

Cargo name [1]	IMO Annex II pollution category [2]	Cargo containment system [3]	Vent height [4]	Vent [5]	C
*Dimethyloctanoic acid	C	III	NR	Open	O
Dimethyl phthalate	C	III	NR	Open	O
*Dimethyl succinate	C	III	NR	Open	O
Dinitrotoluene (molten)	B	II	B/3	PV	C
1,4-Dioxane	D	II	B/3	PV	C
Dipentene	C	III	4m	PV	R
Diphenyl	A	I	NR	Open	C
Diphenyl/Diphenyl **ether** mixtures	A	I	NR	Open	C
Diphenyl ether	A	III	NR	Open	C
Diphenylmethane diisocyanate [12]	B	II	B/3	PV	C
*Diphenylol propane-epichlorohydrin resins	B	III	NR	Open	C
Diphenyl **ether**, Biphenyl phenyl ether mixtures.	A	III	NR	Open	C
Di-n-propylamine	C	III	4m	PV	F
Dodecanol	B	III	NR	Open	C
Dodecene (all isomers)	B	III	NR	Open	C
Dodecyl alcohol *see* Dodecanol					
*Dodecylamine, Tetradecylamine mixture	[C]	III	4m	PV	F
Dodecylbenzene	C	III	NR	Open	C
Dodecyl diphenyl **ether** disulfonate solution	B	III	NR	Open	C
Dodecyl methacrylate	III	III	NR	Open	C
Dodecyl-Pentadecyl methacrylate mixture	III	III	NR	Open	C
Dodecyl phenol	A	I	NR	Open	C
*Drilling brine (containing Zinc salts)	A	II	NR	Open	C
Epichlorohydrin	C	II	B/3	PV	C
Ethanolamine	D	III	NR	Open	C
2-Ethoxyethyl acetate	C	III	4m	PV	F
Ethyl acrylate	B	II	4m	PV	F
Ethylamine	C	II	B/3	PV	C
Ethylamine solution (72% or less)	C	II	B/3	PV	C
*Ethyl amyl ketone	C	III	4m	PV	F
Ethyl benzene	C	III	4m	PV	F
N-Ethylbutylamine	C	III	4m	PV	F
Ethyl butyrate	C	III	4m	PV	F
N-Ethylcyclohexylamine	D	III	4m	PV	F
Ethylene chlorohydrin	C	II	B/3	PV	C
Ethylene cyanohydrin	D	III	NR	Open	C
Ethylenediamine	C	II	4m	PV	F
Ethylene dibromide	B	II	B/3	PV	C
Ethylene dichloride	B	II	4m	PV	F
Ethylene glycol diacetate	C	III	NR	Open	C
Ethylene glycol ethyl ether acetate *see* **2-Ethoxyethyl acetate**					
Ethylene oxide (30% or less), Propylene oxide **mixture.**	D	II	B/3	PV	C
Ethyl ether	III	II	4m	PV	G
*Ethyl-3-ethoxypropionate	[C]	III	4m	PV	F

REQUIREMENTS—Continued

Gauge [6]	Fire protection system [7]	Special requirements [8]	Electrical hazard class and group [9]
Open	A	.440, .903, .908(b)	I-D [15]
Open	A	None	I-D
Open	A	.440, .908(b)	NA
Closed	A	.316, .408, .440, .525, .526, .527, .908(a), **(b),** .1020	I-C
Closed	A	.408, .525, .526, .1020	I-C
Restr	A	.409	I-D
Open	B	**.408**	I-D [15]
Open	B	**.408**	I-D [15]
Open	A	**None**	I-D
Closed	**A, B, C [12], D**	.236(a), (b), .316, .440, .500, .501, .525, .526, .602, .908(a), .1000, .1020.	NA
Open	B	.440, .908(a)	NA
Open	B	None	NA
Restr	A	.236(b), (c), .409, .525, .526, .1020	I-C
Open	A	.440, .908(a), (b)	I-D
Open	A	None	I-D
Restr	A, D	.236(b), (c), .440, .526, .903, .908(a), (b)	NA
Open	A	None	I-D
Open	NSR	.440, .908(a)	NA
Open	**A**	.236(b), (c), .912(a)(1), .1004	I-D
Open	**A, D**	.912(a)(1), .1002(a), (b), .1004	NA
Open	A	.408	I-D
Open	NSR	.409	NA
Closed	A	.316, .408, .525, .526, .527, .1020	I-C
Open	A	.236(b), (c), .526	I-D [15]
Restr	A	.409	I-C
Restr	A	.526, .527, .912(a)(1), .1002(a), (b), .1004	I-D
Closed	C, D	.236(b), (c), **.252,** .372, .525, .526, .527, .1020	I-D
Closed	A, C	.236(a), (b), (c), (g), .372, .408, .525(a), (c), (d), (e), .526, .527, .1020.	I-D
Restr	A	.409	I-D
Restr	A	.409	I-D
Restr	A	.236(a), (b), (c), (g), .409, .525(a), (c), (d), (e), .526, .1020.	I-C
Restr	A	**.409**	I-D
Restr	**A**	.236(a), (b), (c), (g), .409, .526	I-C
Closed	**A, D**	.316, .408, .525, .526, .527, .933, .1020	I-D
Open	A	None	NA
Restr	A	.236(b), (c), .440, .526, .908(b)	I-D
Closed	NSR	.408, .440, .525, .526, .527, .908(b), .1020	NA
Restr	**A, B**	.236(b), .408, .526	I-D
Open	A	**None**	I-D [15]
Closed	A, C	**.252,** .372, .408, .440, .500, .525, .526, .530, .1010, .1011, 1020.	I-B
Closed	A	.236(g), .252, .372, .408, .440, .500, .515, .526, .527	I-C
Restr	A	.409	NA

TABLE 1—SUMMARY OF MINIMU

Cargo name [1]	IMO Annex II pollution category [2]	Cargo containment system [3]	Vent height [4]	Vent [5]
*2-Ethylhexanol	@C	III	NR	Open
2-Ethylhexyl acrylate	D	III	NR	Open
2-Ethylhexylamine	B	II	B/3	PV
*Ethyl hexyl phthalate	C	III	NR	Open
Ethylidene norbornene	B	III	B/3	PV
Ethyl methacrylate	D	III	4m	PV
Ethylphenol	A	III	NR	Open
2-Ethyl-3-propyl acrolein	B	III	4m	PV
Ethyl toluene	B	III	4m	PV
Fatty alcohols (C12 - C22)	B	III	NR	Open
*Ferric chloride solution	C	III	NR	Open
*Ferric nitrate, Nitric acid solution	C	II	4m	PV
Formaldehyde (50% or more), Methanol mixtures.	#	III	4m	PV
Formaldehyde solution (37% to 50%)	C	III	4m	PV
Formic acid	D	III	4m	PV
Fumaric adduct of rosin, water dispersion	B	III	NR	Open
Furfural	C	III	4m	PV
Furfuryl alcohol	C	III	NR	Open
Glutaraldehyde solution (50% or less)	D	III	NR	Open
Glycidyl ester of tridecyl acetic acid	B	III	NR	Open
*Heptane (all isomers)	C	III	4m	PV
Heptanol (all isomers)	C	III	4m	PV
Heptene (mixed isomers)	C	III	4m	PV
Heptyl acetate	B	III	NR	Open
Hexamethylenediamine solution	C	III	4m	PV
Hexamethyleneimine	C	II	4m	PV
*Hexane (all isomers)	C	III	4m	PV
Hexene (all isomers)	C	III	4m	PV
Hexyl acetate	B	III	4m	PV
Hydrochloric acid	D	III	4m	PV
Hydrogen peroxide solutions (over 8% but not over 60%).	C	III	B/3	PV
Hydrogen peroxide solutions (over 60% but not over 70%).	C	II	B/3	PV
2-Hydroxyethyl acrylate	B	II	B/3	PV
*2-Hydroxy-4-(methylthio)butanoic acid	[C]	III	NR	Open
Isophorone diamine	D	III	4m	PV
Isophorone diisocyanate [12]	B	III	B/3	PV
Isoprene	C	III	4m	PV
Isopropyl benzene *see* Cumene				
Lactonitrile solution (80% or less)	B	II	B/3	PV
*Lauric acid	B	III	NR	Open
Maleic anhydride [10]	D	III	4m	PV

MUM REQUIREMENTS—Continued

[5]	Gauge [6]	Fire protection system [7]	Special requirements [8]	Electrical hazard class and group [9]
	Open	A	None	I-D
	Open	A	.912(a)(1), .1002(a), (b), .1004	I-D
	Restr	A	.236(b), (c), .525, .526, .1020	I-D [15]
	Open	A	None	NA
	Restr	A, D	.236(b), .409, .526	NA
	Restr	A, D	.526, .912(a)(1), .1002(a), (b), .1004	I-D
	Open	B	.409	I-D [15]
	Restr	A	.440, .526, .908(b)	I-C
	Restr	A	.409	I-D
	Open	A	.440, .908(a), (b)	NA
	Open	NSR	.409, .440, .554, .555, .908(b), .1045	I-B
	Restr	NSR	.408, .526, .527, .554, .555, .559, .933, .1045	I-B
	Closed	A	.526, .527	I-B
	Restr	A	.526, .527	I-B
	Restr	A	.238(b), (c), .526, .527, .554	I-D
	Open	NSR	.440, .908(a)	NA
	Restr	A	.526	I-C
	Open	A	None	I-C
	Open	NSR	None	NA
	Open	A	None	NA
	Restr	A	.409	I-D
	Restr	A	.409	I-D
	Restr	A	.409	I-D
	Open	A	None	NA
	Restr	A	.236(b), (c), .409, .440, .526, .908(b)	I-D
	Restr	A, C	.236(a), (b), (c), (g), .526	I-C
	Restr	A	.409	I-D
	Restr	A	.409	I-D
	Restr	A	.409	I-D
	Restr	NSR	.252, .526, .527, .554, .557, .933, .1045, .1052	I-B [11]
	Closed	NSR	.238 (a), (c), .355, .409, .440(a) (1)&(2), .500, .933, .1004(a)(2), .1500.	NA
	Closed	NSR	.238 (a), (c), .355, .409, .440(a) (1)&(2), .500, .933, .1004(a)(2), .1500.	NA
	Closed	A	.408, .525, .526, .912(a)(1), .933, .1002 (a), (b), .1004, .1020.	NA
	Open	A	.440, .908(a), (b)	NA
	Restr	A	.236(b), (c), .526	NA
	Closed	[12] A, B, D	.236(a), (b), .316, .500, .501 .526, .602, .1000, .1020	NA
	Restr	B	.372, .440, .912(a)(1), .1002(a), (b), .1004	I-D
	Closed	A, C, D	.238(d), .252, .316, .336, .408, .440, .525, .526, .527, .908(a), .912(a)(2), .1002, .1004, .1020, .1035.	I-D [15]
	Open	A	.440, .488, .908(a), (b)	NA
	Restr	A, C [10]	None	I-D [15]

TABLE 1—SUMMARY OF MINIMUM RE

Cargo name [1]	IMO Annex II pollution category [2]	Cargo containment system [3]	Vent height [4]	Vent [5]	G
Mercaptobenzothiazol, sodium salt solution *see* Sodium-2-mercaptobenzothiazol solution					
Mesityl oxide	D	III	4m	PV	Re
*Metam sodium solution	A	III	NR	Open	Op
Methacrylic acid	D	III	4m	PV	Re
Methacrylonitrile	B	II	B/3	PV	Cl
Methyl acrylate	C	II	4m	PV	Re
Methylamine solution (42% or less)	C	II	B/3	PV	Cl
Methylamyl acetate	C	III	4m	PV	Re
Methylamyl alcohol	C	III	4m	PV	Re
Methylamyl ketone	C	III	4m	PV	Re
Methyl butyrate	C	III	4m	PV	Re
*Methylcyclohexane	C	III	4m	PV	Re
*Methylcyclopentadiene dimer	B	III	4m	PV	Re
*Methyldiethanolamine	[C]	III	NR	Open	Op
Methylene chloride see Dichloromethane					
2-Methyl-6-ethyl aniline	C	III	NR	Open	Op
2-Methyl-5-ethyl pyridine	B	III	NR	Open	Op
Methyl formate	D	II	B/3	PV	Re
Methyl heptyl ketone	B	III	4m	PV	Re
2-Methyl-2-hydroxy-3-butyne	III	III	4m	PV	Re
Methyl methacrylate	D	II	4m	PV	Re
*Methyl naphthalene	A	III	NR	Open	Op
2-Methyl-1-pentene	C	III	4m	PV	Re
*4-Methyl-1-pentene	[C]	III	4m	PV	Re
2-Methylpyridine	B	II	B/3	PV	Cl
*3-Methylpyridine	[B]	II	4m	PV	Cl
4-Methylpyridine	B	II	B/3	PV	Cl
N-Methyl-2-pyrrolidone	B	III	NR	Open	Op
Methyl salicylate	B	III	NR	Open	Op
alpha-Methyl styrene	A	III	4m	PV	Re
*Metolachlor	@B	III	NR	Open	Op
Morpholine	D	III	4m	PV	Re
Motor fuel anti-knock compounds (containing lead alkyls).	A	II	B/3	PV	Cl
*Myrcene	[B]	III	4m	PV	Re
Naphthalene (molten)	A	II	4m	PV	Re
*Naphthalene sulfonic acid, sodium salt solution (40% or less).	[A]	III	NR	Open	Op
*Naphthenic acid	A	II	NR	Open	Op
*Naphthenic acid, sodium salt solution	[A]	II	NR	Open	Op
Neodecanoic acid	C	III	NR	Open	Op
Nitrating acid (*mixture of Sulfuric and Nitric acids*).	C	II	B/3	PV	Cl
Nitric acid (70% or less)	C	II	4m	PV	Re

REQUIREMENTS—Continued

Gauge [6]	Fire protection system [7]	Special requirements [8]	Electrical hazard class and group [9]
Restr	A	.236(b), (c), .409, .526	I-D
Open	NSR	.236(a), (b), (c), (g), .409	NA
Restr	A	.238(a), .526, .912(a)(1), .1002(a), .1004	NA
Closed	A	**.236(b)**, .316, .408, .525, .526, .527, .912(a)(1), .1002(a), .1004, .1020.	NA
Restr	B	.526, .527, .912(a)(1), .1002(a), (b), .1004	I-D
Closed	A, C, D	.236(a), (b), (c), (g), .316, .408, .525, .526, .527, .1020.	I-D
Restr	A	.409	I-D
Restr	A	.409	I-D
Restr	A	.409	I-D
Restr	A	.409	I-D [15]
Restr	A	.409	I-D [15]
Restr	B	.409	I-B [15]
Open	A	.236(b), (c), .440, .903, .908(a)	I-C [15]
Open	**A, D**	None	NA
Open	**A, D**	.236(b)	I-D
Restr	A	.372, .408, .440, .525, .526, .527, .1020	I-D
Restr	A	.409	I-D [15]
Restr	**A, B, D**	.236(b), (d), (f), (g), .409, .526	I-D
Restr	**A**	.526, .912(a)(1), .1002(a), (b), .1004	I-D
Open	A	.903, .908(a), (b)	I-D [15]
Restr	A	.409	I-D
Restr	A	.409	I-D [15]
Closed	**A**	.236(b), .408, .525(a), (c), (d), (e), .1020	I-D
Closed	**A**	.236(b), .408, .525(a), (c), (d), (e), .1020	I-D [15]
Closed	**A**	.236(b), .408, .440, .525(a), (c), (d), (e), .526, .908(b), .1020.	I-D
Open	A	None	I-D
Open	D	None	I-D
Restr	D	.409, .526, **.903**, .912(a)(1), .1002(a), (b), .1004	I-D
Open	A	None	NA
Restr	A	.236(b), (c)	I-C
Closed	**A, C**	.252, .316, .336, .408, .525, .526, .527, .933, .1020, .1025.	I-D
Restr	A	.409	NA
Restr	A, D	.409, .440, .908(b)	I-D [15]
Open	NSR	None	NA
Open	A	.409	NA
Open	NSR	.409	NA
Open	A	None	NA
Closed	NSR	.316, .408, .526, .527, .554, .555, .556, .559, **.602**, .933, .1000, .1045.	I-B [11]
Restr	NSR	.408, .526, .527, .554, .555, .559, .933, .1045	I-B [11]

TABLE 1—SUMMARY OF MINIM

Cargo name [1]	IMO Annex II pollution category [2]	Cargo containment system [3]	Vent height [4]	Vent [5]
Nitrobenzene	B	II	B/3	PV
o-Nitrochlorobenzene	B	II	B/3	PV
o-Nitrophenol (molten)	B	II	B/3	PV
1- or 2-Nitropropane [10]	D	III	4m	PV
Nitropropane (60%), Nitroethane (40%) mixture [10].	D	III	4m	PV
(o-, p-) Nitrotoluene	C	II	B/3	PV
*Nonane (all isomers)	C	III	4m	PV
Nonene	B	III	4m	PV
Nonyl alcohol (all isomers)	C	III	NR	Open
Nonyl phenol	A	II	NR	Open
*Nonyl phenol poly(4-12)ethoxylates	B	III	NR	Open
*Noxious liquid, N.F., (1) n.o.s. ("trade name" contains "principal components") ST 1, Cat A.	A	I	NR	Open
*Noxious liquid, F., (2) n.o.s. ("trade name" contains "principal components") ST 1, Cat A.	A	I	4m	PV
*Noxious liquid, N.F., (3) n.o.s. ("trade name" contains "principal components") ST 2, Cat A.	A	II	NR	Open
*Noxious liquid, F., (4) n.o.s. ("trade name" contains "principal components") ST 2, Cat A.	A	II	4m	PV
*Noxious liquid, N.F., (5) n.o.s. ("trade name" contains "principal components") ST 2, Cat B.	B	II	NR	Open
*Noxious liquid, N.F., (6) n.o.s. ("trade name" contains "principal components") ST 2, Cat B, mp. equal to or greater than 15 deg. C.	B	II	NR	Open
*Noxious liquid, F., (7) n.o.s. ("trade name" contains "principal components") ST 2, Cat B.	B	II	4m	PV
*Noxious liquid, F., (8) n.o.s. ("trade name" contains "principal components") ST 2, Cat B, mp. equal to or greater than 15 deg. C.	B	II	4m	PV
*Noxious liquid, N.F., (9) n.o.s. ("trade name" contains "principal components") ST 3, Cat A.	A	III	NR	Open
*Noxious liquid, F., (10) n.o.s. ("trade name" contains "principal components") ST 3, Cat A.	A	III	4m	PV
*Noxious liquid, N.F., (11) n.o.s. ("trade name" contains "principal components") ST 3, Cat B.	B	III	NR	Open

IIMUM REQUIREMENTS—Continued

nt [5]	Gauge [6]	Fire protection system [7]	Special requirements [8]	Electrical hazard class and group [9]
	Closed	A, D	.316, .336, .408, .440, .525, .526, .908(b), .933, .1020.	I-D
	Closed	A, B, D	.316, .336, .408, .440, .525, .526, .908(a), (b), .1020	NA
	Closed	A, D	.440, .525, .526, .908(a), (b), .1020	NA
	Restr	A [10]	.526	I-C
	Restr	A [10]	.236(b), .526	I-C
	Closed	B	.316, .408, .440, .525, .526, .908(b), .1020	I-D [15]
	Restr	B, C	.409	I-D
	Restr	A	.409	I-D
n	Open	A	None	I-D
n	Open	A	.409	I-D
n	Open	A	.409, .440, .488 [17], .908(a), (b)	I-D [15]
n	Open	A	.408	NA
	Restr	A	.408	NA
n	Open	A	.409	NA
	Restr	A	.409	NA
n	Open	A	.409; (.440, .903, .908) [17]	NA
n	Open	A	.409, .488; (.440, .903, .908) [17]	NA
	Restr	A	.409; (.440, .903, .908) [17]	NA
	Restr	A	.409, .488; (.440, .903, .908) [17]	NA
n	Open	A	None	NA
	Restr	A	.409	NA
n	Open	A	(.440, .903, .908) [17]	NA

TABLE 1—SUMMARY OF MINIMUM RE

Cargo name [1]	IMO Annex II pollution category [2]	Cargo containment system [3]	Vent height [4]	Vent [5]	G
*Noxious liquid, N.F., (12) n.o.s. ("trade name" contains "principal components") ST 3, Cat B, mp. equal to or greater than 15 deg. C.	B	III	NR	Open	Op
*Noxious liquid, F., (13) n.o.s. ("trade name" contains "principal components") ST 3, Cat B.	B	III	4m	PV	Re
*Noxious liquid, F., (14) n.o.s. ("trade name" contains "principal components") ST 3, Cat B, mp. equal to or greater than 15 deg. C.	B	III	4m	PV	Re
*Noxious liquid, N.F., (15) n.o.s. ("trade name" contains "principal components") ST 3, Cat C.	C	III	NR	Open	Op
*Noxious liquid, F., (16) n.o.s. ("trade name" contains "principal components") ST 3, Cat C.	C	III	4m	PV	Re
*Octane (all isomers)	C	III	4m	PV	Re
Octanol (all isomers)	C	III	NR	Open	Op
Octene (all isomers)	B	III	4m	PV	Re
Octyl aldehydes	B	III	4m	PV	Re
*Octyl nitrates (all isomers)	A	II	NR	Open	Op
*Olefin mixtures (C5 - C7)	C	III	4m	PV	Re
*Olefin mixtures (C5 - C15)	B	III	4m	PV	Re
**Olefins, straight chain mixtures see* Olefin mixtures (C5 - C7) *or* (C5 - C15).					
Oleum	C	II	B/3	PV	Cl
*Palm nut oil, fatty acid	C	III	NR	Open	Op
*Palm nut oil, fatty acid methyl ester	[C]	III	NR	Open	Op
Paraldehyde	C	III	4m	PV	Re
Pentachloroethane	B	II	B/3	PV	Re
1,3-Pentadiene	C	III	4m	PV	Re
Pentane (all isomers)	C	III	4m	PV	Re
Pentene (all isomers)	C	III	4m	PV	Re
Perchloroethylene	B	III	4m	PV	Re
Phenol (*or solutions with 5% or more Phenol*).	B	II	B/3	PV	Cl
1-Phenyl-l-xylyl ethane	C	III	NR	Open	Op
Phosphoric acid	D	III	NR	Open	Op
Phthalic anhydride (molten)	C	III	4m	PV	Re
Pinene	B	III	4m	PV	Re
*Pine oil	[B]	III	NR	Open	Op
*Polyalkylene oxide polyol	[C]	III	NR	Open	Op
*Polyalkyl(C18 - C22) acrylate in Xylene	[C]	III	4m	PV	Re
Polyethylene polyamines	C	III	NR	Open	Op
*Polyferric sulfate solution	C	III	NR	Open	Op
Polymethylene polyphenyl isocyanate [12]	D	II	B/3	PV	Cl
*Poly(20)oxyethylene sorbitan monooleate	[B]	III	NR	Open	Op

REQUIREMENTS—Continued

Gauge [6]	Fire protection system [7]	Special requirements [8]	Electrical hazard class and group [9]
Open	A	.488; (.440, .903, .908) [17]	NA
Restr	A	.409; (.440, .903, .908) [17]	NA
Restr	A	.409, .488; (.440, .903, .908) [17]	NA
Open	A	(.440, .903, .908) [17]	NA
Restr	A	(.440, .903, .908) [17]	NA
Restr	A	.409	I-D
Open	A	None	I-D
Restr	A	.409	I-D
Restr	A	.409, **.440, .908(b)**	I-C [15]
Open	B	.409, .560, .1002	NA
Restr	A	.409	I-D
Restr	A	.409	I-D
Closed	NSR	.316, .408, .440, .526, .527, .554, .555, .556, .602, .908(a), .933, .1000, .1045, .1052.	I-B [11]
Open	B	.903, .908(a), (b)	NA
Open	A	.903, .908(a)	NA
Restr	A	.440, .908(b)	I-C
Restr	NSR	.316, .409, .525, .526, .1020	NA
Restr	**A, B**	.526, .912(a)(1), .1002, .1004	I-D
Restr	A	.409	I-D
Restr	A	**.409**	I-D
Restr	NSR	.526	NA
Closed	A	.408, .440, .525, .526, .908(b), .933, .1020	I-D [15]
Open	**A, B**	None	NA
Open	NSR	.554, .555, .558, .1045, .1052	I-B [11]
Restr	**A, D**	.440, .908(b)	I-D [15]
Restr	A	.409	I-D
Open	A	.908(a)	I-D [15]
Open	A	.440, .903, .908(a)	NA
Restr	A	.409, .903, .908(a)	NA
Open	A	.236(b), (c), .400, .440, .908(b)	NA
Open	NSR	.238(d)	NA
Closed	[12] **A**	.236 (a), (b), .409, .500, .501, .525, .526, .602, .1000, .1020.	NA
Open	A	.440, .908(a)	NA

TABLE 1—SUMMARY OF MINIMUM RE

Cargo name [1]	IMO Annex II pollution category [2]	Cargo containment system [3]	Vent height [4]	Vent [5]	G
Potassium hydroxide solution *see* Caustic potash solution					
iso-Propanolamine	C	III	NR	Open	Op
n-Propanolamine	C	III	NR	Open	Op
Propionaldehyde	D	III	4m	PV	Re
Propionic acid	D	III	4m	PV	Re
Propionic anhydride	C	III	4m	PV	Re
Propionitrile	C	II	B/3	PV	Clo
iso-Propylamine	C	II	B/3	PV	Clo
n-Propylamine	C	II	B/3	PV	Clo
*n-Propylbenzene	C	III	4m	PV	Re
*iso-Propylcyclohexane	C	III	4m	PV	Re
Propylene dimer	C	III	4m	PV	Re
Propylene oxide	D	II	B/3	PV	Clo
*Propylene tetramer	B	III	4m	PV	Re
Propylene trimer	B	III	4m	PV	Re
iso-Propyl ether	D	III	4m	PV	Re
Pyridine	D	III	4m	PV	Re
*Rosin *see* Rosin oil					
Rosin oil	B	III	NR	Open	Op
Rosin soap (disproportionated) solution	B	III	NR	Open	Op
Sodium borohydride (15% or less), Sodium hydroxide solution.	C	III	NR	Open	Op
Sodium chlorate solution (50% or less)	III	III	NR	Open	Op
Sodium dichromate solution (70% or less)	B	II	B/3	Open	Clo
*Sodium dimethyl naphthalene sulfonate solution *see* Dimethyl naphthalene sulfonic acid, sodium salt solution.					
*Sodium hydrogen sulfide (6% or less), Sodium carbonate (3% or less) solution.	[C]	III	NR	Open	Op
Sodium hydrogen sulfite solution (35% or less).	D	III	NR	Open	Op
Sodium hydrosulfide solution (45% or less)	B	III	4m	PV	Re
Sodium hydrosulfide/Ammonium sulfide solution.	B	II	B/3	PV	Clo
Sodium hydroxide solution *see* Caustic soda solution					
Sodium hypochlorite solution (15% or less)	C	III	4m	PV	Re
Sodium-2-mercaptobenzothiazol solution	B	III	NR	Open	Op
*Sodium N-methyldithiocarbamate solution *see* Metam sodium solution.					
*Sodium naphthalene sulfonate solution (40% or less) *see* Naphthalene sulfonic acid, sodium salt solution (40% or less).					
*Sodium naphthenate solution *see* Naphthenic acid, sodium salt solution.					
*Sodium nitrite solution	B	II	NR	Open	Op
Sodium thiocyanate **solution** (56% or less)	B	III	NR	Open	Op
Styrene *monomer*	B	III	4m	PV	Op
Sulfur (molten)	III	III	NR	Open	Op

REQUIREMENTS—Continued

Gauge [6]	Fire protection system [7]	Special requirements [8]	Electrical hazard class and group [9]
Open	A	.236 (b), (c), .440, .526, .908(a)	NA
Open	A, D	.236 (b), (c), .440, .526, .908(b)	NA
Restr	A	.316, .526, .527	I-C
Restr	A	.238(a), .527, .554	I-D
Restr	A	.238(a), .526	I-D
Closed	A, D	.252, .316, .336, .408, .525, .526, .527, .1020	I-D
Closed	C, D	.236(b), (c), .372, .408, .440, .525, .526, .527, .1020	I-D
Closed	A, D	.236(b), (c), .408, .500, .525, .526, .527, .1020	I-D
Restr	A	.409	I-D [15]
Restr	A	.409, .440, .903, .908(a)	I-D [15]
Restr	A	.409	NA
Closed	A, C	.372, .408, .440, .500, .526, .530, .1010, .1011	I-B
Restr	A	.409	I-D [15]
Restr	A	.409	I-D
Restr	A	.409, .500, .515, .912(a)(1)	I-D
Restr	A	.236(b)	I-D
Open	A	None	I-D
Open	A	None	NA
Open	NSR	.236(a), (b), (c), (g), .440, .908(a), .933	NA
Open	NSR	.409, .933, .1065	NA
Closed	NSR	.236(b), (c), .408, .525, .933, .1020	NA
Open	NSR	None	NA
Open	NSR	None	NA
Restr	NSR	.526, .440, .908(b), .933	NA
Closed	A	.236(a), (b), (c), (g), .316, .372, .408, .525, .526, .527, .933, .1002, .1020.	NA
Restr	NSR	.236(a), (b)	NA
Open	NSR	.236(a), (b), (c), (g), .440, .908(b), .933	NA
Open	NSR	.408, .525(a), (c), (d), (e), .1020	NA
Open	NSR	.238(a), .409	NA
Open	B	.236(b), .912(a)(1), .1002(a), (b), .1004	I-D
Open	NSR	.252, .440, .526, .545	I-C

TABLE 1—SUMMARY OF MINIMUM REQU

Cargo name [1]	IMO Annex II pollution category [2]	Cargo containment system [3]	Vent height [4]	Vent [5]	Gaug
Sulfuric acid	C	III	NR	Open	Open
Tall oil (*crude and distilled*)	B	III	NR	Open	Open
Tall oil, fatty acid (*resin acids less than 20%*).	C	III	NR	Open	Open
Tall oil soap (disproportionated) solution	B	III	NR	Open	Open
1,1,2,2-Tetrachloroethane	B	III	B/3	PV	Restr
*Tetradecylbenzene	[C]	III	NR	Open	Open
Tetraethylenepentamine[13]	D	III	NR	Open	Open
Tetrahydrofuran	D	III	4m	PV	Restr
Tetrahydronaphthalene	C	III	NR	Open	Open
*1,2,3,5-Tetramethylbenzene	C	III	NR	Open	Open
Toluene	C	III	4m	PV	Restr
Toluenediamine	C	II	B/3	PV	Close
Toluene diisocyanate [13]	C	II	4m	PV	Close
o-Toluidine	C	II	B/3	PV	Close
Tributyl phosphate	B	III	NR	Open	Open
1,2,4-Trichlorobenzene	B	II	4m	PV	Restr
1,1,1-Trichloroethane	B	III	NR	Open	Open
1,1,2-Trichloroethane	B	III	B/3	PV	Restr
Trichloroethylene	B	III	B/3	PV	Restr
1,2,3-Trichloropropane	B	II	B/3	PV	Close
1,1,2-Trichloro-1,2,2-trifluoroethane	C	III	NR	Open	Open
Tricresyl phosphate (less than 1% of ortho isomer).	A	II	NR	Open	Open
Tricresyl phosphate (1% or more of the ortho isomer).	A	I	4m	PV	Close
Tridecyl benzene *see* **Alkyl(C9 - C17) benzenes**.					
Triethanolamine	D	III	NR	Open	Open
Triethylamine	C	II	B/3	PV	Restr
Triethylbenzene	A	II	NR	Open	Open
*Triethylene glycol di-(2-ethylbutyrate)	[C]	III	NR	Open	Open
Triethylenetetramine	D	III	NR	Open	Open
Triethyl phosphite	#	III	B/3	PV	Restr
Trimethylacetic acid	D	III	4m	PV	Restr
Trimethyl benzenes (all isomers)	B	III	4m	PV	Restr
Trimethylhexamethylene diamine (2,2,4- and 2,4,4-isomers).	D	III	NR	Open	Open
Trimethylhexamethylene diisocyanate (2,2,4- and 2,4,4-isomers) [13].	B	II	B/3	PV	Close
2,2,4-Trimethyl-1,3-pentanediol-1-isobutyrate	C	III	NR	Open	Open
Trimethyl phosphite	#	III	4m	PV	Restr
**Tritolyl phosphate* *see* Tricresyl phosphate					
Trixylenyl phosphate	A	I	NR	Open	Open
*Trixylyl phosphate *see* Trixylenyl phosphate					
Turpentine	B	III	4m	PV	Restr
*Undecanoic acid	C	III	NR	Open	Open

QUIREMENTS—Continued

auge [6]	Fire protection system [7]	Special requirements [8]	Electrical hazard class and group [9]
en	NSR	.440, .554, .555, .556, .602, .908 (a), (b), .933, .1000, .1045, .1046, .1052.	I-B [11]
en	A	None	NA
en	A	None	NA
en	A	.440, .908(a)	NA
str	NSR	.316, .526, .526, .1020	NA
en	A	.908(b)	I-D [15]
en	A	.236(b), (c), (g)	I-C [15]
str	A	.526, .912(a)(2), .1004	I-C
en	A	None	I-D
en	A	None	I-D [15]
str	A	.409	I-D
osed	A, D	.236(a), (b), (c), (g), .316, .408, .440, .525, .526, .527, .908(b), .933, .1020.	
osed	A, C [12], D	.236(b), .316, .408, .440, .500, .501, .525, .526, .527, .602, .908(b), .1000, .1020.	I-D [15]
osed	A	.316, .408, .525, .526, .933, .1020	I-D [15]
en	A	None	I-D
str	A, B	.409, .440, .526, .908(b)	I-D
en	A	None	I-D
str	NSR	.526	I-D
str	NSR	.316, .525, .526, .1020	I-D
osed	A, B, D	.316, .408, .525, .526, .1020	I-D
en	NSR	None	NA
en	A	.409	I-D [15]
osed	A, B	.408, .525(a), (c), (d), (e), .1020	I-D [15]
en	A	.236(a), (b), (c), (g)	I-C [15]
str	A, C	.236(b), (c), .525, .526, .527, .1020	I-C
en	A	.409	I-D
en	A	None	I-C [15]
en	A	.236(a), (b), (c)	I-C [15]
str	A, B	.526	NA
str	A, C	.238(a), .266, .554	I-D
str	A	.409	I-D
en	A, C	.236 (a), (b), (c), (g), .409	NA
osed	A, C [12]	.316, .500, .501, .525, .526, .602, .1000, .1020	NA
en	A	None	I-D
str	A, D	.409, .526, .602, .1000	I-D
en	A	.408	NA
str	A	.409	I-D
en	A	.903, .908(a), (b)	NA

TABLE 1—SUMMARY OF MINIMUM

Cargo name [1]	IMO Annex II pollution category [2]	Cargo containment system [3]	Vent height [4]	Vent [5]
1-Undecene	B	III	NR	Open
Undecyl alcohol	B	III	NR	Open
*Undecylbenzene	[C]	III	NR	Open
Urea, Ammonium nitrate solution (containing more than 2% NH_3).	C	III	4m	PV
iso-Valeraldehyde	C	III	4m	PV
n-Valeraldehyde	D	III	4m	PV
Vinyl acetate	C	III	4m	PV
Vinyl ethyl ether	C	II	4m	PV
Vinylidene chloride	B	II	4m	PV
Vinyl neodecanate	C	III	NR	Open
Vinyl toluene	A	III	4m	PV
White spirit (low (15-20%) aromatic)	B	II	4m	PV
Xylenes [16] (*ortho-*, *meta-*, *para-*)	C	III	4m	PV
Xylenol	B	III	NR	Open

* denotes newly added products.
Entries in **boldface** are changes.

COLUMN HEADING FOOTNOTES:

[1] The cargo name must be as it appears in this column (**see §§ 153.900, 153.907).** Words in it one entry references another entry by use of the word "*see*", and both names are in roman However, the referenced entry is preferred.

[2] This column lists the IMO Annex II Pollution Category.
A, B, C, D -- NLS Category of Annex II of MARPOL 73/78.
III -- Appendix III of Annex II (non-NLS cargoes) of MARPOL 73/78.
-- No determination of NLS status. For shipping on an oceangoing vessel, see 46 CFR 153.9
[] -- A NLS category in brackets indicates that the product is provisionally categorized and th hazard evaluation is completed, the pollution category assigned is used.
@ -- The NLS category has been assigned by the U.S. Coast Guard, in absence of one assig product having one assigned.

[3] This column lists the type of containment system the cargo must have (see §§ 153.230 throug

[4] This column lists the height of any vent riser required (see §§ 153.350 and 153.351).

[5] This column lists any vent control valve required (see § 153.355).

[6] This column lists the type of gauging system required (see §§ 153.400 through 153.406).

[7] This column lists the type of fire protection system required. Where more than one system is either type of foam system unless the dry chemical system is listed as an alternative or the
A is a foam system for water soluble cargoes (polar solvent foam).
B is a foam system for water insoluble cargoes (non-polar solvent foam).
C is a water spray system.
D is a dry chemical system.
NSR means there is no special requirement applying to fire protection systems.

[8] This column lists sections that apply to the cargo in addition to the general requirements of th

[9] This column lists the electrical hazard class and group used for the cargo when determinin chapter.

Abbreviations used:
NR -- No requirement.
NA -- Not applicable.

FOOTNOTES OF SPECIFIC CARGOES:

BEST COPY A

UM REQUIREMENTS—Continued

	Gauge [6]	Fire protection system [7]	Special requirements [8]	Electrical hazard class and group [9]
....	Open	A	None.....	I-D
....	Open	A	.440, .908(b).....	I-D
....	Open	A	None.....	I-D [15]
....	Restr	A	.236(b), .526.....	I-D
....	Restr	A	.500, .526.....	I-C
....	Restr	A	.500, .526.....	I-C
....	Open	A	.912(a)(1), .1002 (a), (b), .1004.....	I-C
....	Closed.....	A	.236(b),(d),(f),(g), .252, .372, .408, .440, .500, .515, .526, .527, .912(a)(1), .1002 (a), (b), .1004.	
....	Restr	B	.236 (a), (b), .372, .440, .550, .526, .527, .912(a)(1), .1002 (a), (b), .1004.	I-D
....	Open	A, B	.912(a)(1), .1002 (a), (b), .1004.....	NA
....	Restr	A, B	.236 (a), (b), (c), (g), .409, .912(a)(1), .1002(a), (b), .1004.	I-D
....	Restr	A	.409.....	NA
....	Restr	A	.409, .440, .908(b) [16].....	I-D
....	Open	A, B	.440, .908(a), (b).....	NA

n italics are not part of the cargo name but may be used in addition to the cargo name. When an type, either name may be used as the cargo name (e.g., Diethyl ether *see* Ethyl ether).

3.900(c).

d that further data are necessary to complete the evaluation of its pollution hazards. Until the

ssigned by the IMO, based upon a GESAMP Hazard Profile or by analogy to a closely related

ough 153.232).

m is li sted, any listed system may be used. A dry chemical system may not be substituted for he substitution is approved by Commandant (G-MTH) (§ 153.460). The types are as follows:

f this part. The 153 Part number is omitted.

ning requirements for electrical equipment under Subchapter J (Electricial engineering) of this

Y AVAILABLE

[10] Dry chemical extinguishers should not be used on fires involving this cargo since some dry ch
[11] The I-B electrical hazard for acids does not apply to weather deck locations. See 46 CFR Part
[12] Water is effective in extinguishing open air fires but will generate hazardous quantities of gas
[13] Aluminum is a questionable material of construction with this cargo since pitting and corro
construction for this cargo.
[14] Some tank pitting has been reported when this cargo is contaminated with water, including m
be kept dry.
[15] Electrical Hazard Class and Group based upon that which appears in "Classification of Gases
NMAB 353-5, National Academy Press, 1982, but not appearing in NFPA 497M, "Manual for Cla
Locations." See also Subchapter J (Electrical Engineering) of this chapter.
[16] Special requirement .908(b) only applies to the para isomer, and mixtures containing the para
[17] Special applicability:

§§ 153.440 and .908(a) apply to the chemical, and mixtures containing the chemical, with a visco
§§ 153.440 and .908(b) apply to the chemical, and mixtures containing the chemical, with a melti
§§ 153.448 applies to the chemical, and mixtures containing the chemical, with a melting point of

ABBREVIATIONS FOR NOXIOUS LIQUID CARGOES:

N.F. -- non-flammable.
F. -- flammable.
n.o.s. -- not otherwise specified.
ST -- Ship type.
Cat -- Pollution category.

AVAILABLE

chemicals may react with the cargo and cause an explosion.
Part 111.
as if put on the cargo in enclosed spaces.
rrosion have been reported. The IMO Chemical Code prohibits aluminum as a material of

g moisture in the air. The IMO Chemical Code requires that the vapor space over this cargo

ses, Liquids and Volatile Solids Relative to Explosion-Proof Electrical Equipment", Publication
Classification of Gases, Liquids and Dusts for Electrical Equipment in Hazardous Classified

ara isomer having a melting point of 0 deg C (32 deg F) or more.

scosity of 25 mPa.s at 20 deg C (68 deg F).
elting point of 0 deg C (32 deg F) and above.
t of 15 deg C (59 deg F) and above.

TABLE 2—CARGOES NOT REGULATED UNDER SUBCHAPTERS D OR O OF THIS CHAPTER WHEN CARRIED IN BULK ON NON-OCEANGOING BARGES

Cargoes	Pollution Category
*2-Amino-2-hydroxymethyl-1,3-propanediol solution	III
*Ammonium hydrogen phosphate solution	[III]
Ammonium nitrate solution (45% or less)	D
Ammonium nitrate, Urea solution (2% or less NH_3)	D
Ammonium phosphate solution	#
Ammonium phosphate, Urea solution	D
Ammonium polyphosphate **solution**	@D
Ammonium sulfate solution (20% or less)	D
Apple juice	III
Calcium bromide solution	III
*Calcium carbonate slurry	III
Calcium chloride solution	III
*Calcium hydroxide slurry	D
*Calcium nitrate, Magnesium nitrate, Potassium chloride solution	III
Chlorinated paraffins (C14-C17) (with 52% Chlorine)	III
2-Chloro-4-ethylamino-6-isopropylamino-5-triazine solution	#
Choline chloride solution	D
*Clay slurry	III
*Coal slurry	III
*Dextrose solution	III
Diethylenetriamine pentaacetic acid, pentasodium salt solution	III
1,4-Dihydro-9,10-dihydroxy anthracene, disodium salt solution	D
*2-Dodecenylsuccinic acid, dipotassium salt solution	[III]
*Drilling brine (containing Calcium or Sodium salts)	III
*Drilling brine (containing Zinc salts)	A
*Drilling mud (low toxicity) (*if non-flammable and non-combustible*)	[III]
Ethylenediaminetetraacetic acid, tetrasodium salt solution	D
Ethylene-Vinyl acetate copolymer (*emulsion*)	III
*Ferric hydroxyethylethylene diamine triacetic acid, trisodium salt solution	D
*Fish solubles (*water based fish meal extracts*)	[D]
*Fructose solution	#
Glucose solution	III
Glycine, sodium salt solution	III
Hexamethylenediamine adipate	D
N-(Hydroxyethyl)ethylenediamine triacetic acid, trisodium salt solution	D
Kaolin clay solution	III
*Kaolin slurry	III

TABLE 2—CARGOES NOT REGULATED UNDER SUBCHAPTERS D OR O OF THIS CHAPTER WHEN CARRIED IN BULK ON NON-OCEANGOING BARGES—Continued

Cargoes	Pollution Category
*Kraft pulping liquor (free alkali content, 1% or less) *including: Black, Green, or White liquor*	#
Lignin liquor (free alkali content, 1% or less) *including:*	#
Calcium lignosulfonate solution	
Sodium lignosulfonate solution	
Lignin sulfonic acid, **sodium salt** solution	III
Magnesium chloride solution	III
Magnesium hydroxide slurry	III
Milk	III
Molasses	III
*Molasses residue (*from fermentation*)	[III]
*Noxious liquid, n.o.s. (17) ("trade name," contains "principal components"), Category D (*if non-flammable or non-combustible*)	D
*Non-noxious liquid, n.o.s. (18) ("trade name," contains "principal components"), Appendix III (*if non-flammable or non-combustible*)	III
Pentasodium salt of Diethylenetriamine pentaacetic acid solution, *see* **Diethylenetriamine pentaacetic acid, pentasodium salt solution**	III
Polyaluminum chloride solution	III
Sewage sludge (*treated so as to pose no additional decompositional and fire hazard;* **stable, non-corrosive, non-toxic, non-flammable**)	#
*Silica slurry	[III]
Sludge **(treated so as to pose no additional decompositional and fire hazard;** *stable, non-corrosive, non-toxic, non-flammable*)	#
Sodium aluminosilicate slurry	III
Sodium carbonate solution	D
Sodium naphthenate solution (free alkali content, 3% or less) *see* Naphthenic acid, sodium salt solution	A
Sodium polyacrylate solution	[III]
Sodium silicate solution	D
*Sodium sulfate solution	[III]
Sorbitol solution	III
Tetrasodium salt of Ethylenediaminetetraacetic acid solution, *see* **Ethylenediaminetetraacetic acid, tetrasodium salt solution**	D
1,1,1-Trichloroethane	B

TABLE 2—CARGOES NOT REGULATED UNDER SUBCHAPTERS D OR O OF THIS CHAPTER WHEN CARRIED IN BULK ON NON-OCEANGOING BARGES—Continued

Cargoes	Pollution Category
1,1,2-Trichloro-1,2,2-trifluoroethane	C
Trisodium salt of N-(Hydroxyethyl)-ethylenediaminetriacetic acid solution, *see* **N-(Hydroxyethyl)ethylenediamine triacetic acid, trisodium salt solution**	D
*Urea, Ammonium mono- and di-hydrogen phosphate, Potassium chloride solution	D
Urea, Ammonium nitrate solution (2% or less NH_3), see **Ammonium nitrate, Urea solution (2% or less NH_3)**	D
Urea, Ammonium phosphate solution, see **Ammonium phosphate, Urea solution**	D
*Urea formaldehyde resin solution	III
Urea solution	III
*Vegetable protein solution (*hydrolysed*)	III
*Vanillan black liquor (free alkali content, 1% or less)	#
Water	III
Zinc bromide, Calcium bromide solution *see* Drilling brine (containing Zinc salts)	A

* denotes newly added products.
Entries in **boldface** are changes.

Explanation of Symbols: As used in this table, the following stand for:

A, B, C, D -- NLS Category of Annex II of MARPOL 73/78.

I -- Considered an "oil" under Annex I of MARPOL 73/78.

III -- Appendix III of Annex II (non-NLS cargoes) of MARPOL 73/78.

LFG -- Liquefied flammable gas.

-- No determination of NLS status. For shipping on an oceangoing vessel, see 46 CFR 153.900(c).

[] -- A NLS category in brackets indicates that the product is provisionally categorized and that further data are necessary to complete the evaluation of its pollution hazards. Until the hazard evaluation is completed, the pollution category assigned is used.

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